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ABSTRACT

Proceedings of the 1980 Financial Measures Conference are presented. Papers and authors are as follows: "Ratio Analysis in Higher Education" (John Minter); "Computerized Application of Financial Assessment Technology" (Daniel Updegrove and Stephen D. Campbell); "The Uses and Utility of HEGIS Financial Data" (Loyd Andrew and James Hyatt); "Problems in Providing a National Financial Data Base for Use in Management and Analysis Decisions" "Uses of Financial Assessment in Institutional Management: (1) Balancing Risks and Resources--Financial Strategies for Colleges and Universities and (2) Financial Problems Facing Small Independent Colleges" (Nathan Dickmeyer); "Federal Loan Default Predictions" (Roberta Cable); "The Capital Margin" (Geoffrey C. Hughes and G. Richard Wynn); "Techniques for Measuring Educational Financial Resource Disparities" (Mary Golladay); "A Framework of the Relationship Between Financial Condition and Student Access and Choice" (James Maxwell); "Financial Assessment in Institutional Management and Public Policy Analysis: The Canadian Experience" (Jeffrey Holmes); "Findings and Implications of the Studies of Education and Financial Condition: (1) The Public Sector," (Jacob Stampen) and "(2) The Independent Sector" (Virginia Hodgkinson); "Interpretation of the Indicators: Is Financial Strength Eroding and Educational Quality Improving?" (Hoke Smith); and "Use of Financial Assessment in Developing Education Policy" (George Weathersby). Additional contents are: "Prospects and Recommendations" (Carol Frances); "Introduction to the Proceedings" (Judith Stich); and "Purpose of the Conference" (Carol Frances, Paul Mertins, and Stephen D. Campbell). The agenda and a list of participants are appended. (SW)

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FINANCIAL MEASURES CONFERENCE

USES OF COLLEGE AND UNIVERSITY FINANCIAL ASSESSMENT IN INSTITUTIONAL MANAGEMENT AND PUBLIC POLICY ANALYSIS

1980 Working Conference

Annapolis, Maryland

October 23-24, 1980

Conference organized by

Carol Frances
Nathan Dickmeyer
Paul Mertins

Papers edited by

Judith Stich

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PROSPECTS AND RECOMMENDATIONS

Carol Frances
Chief Economist
American Council on Education

The impact of the conservative revolution in America on higher education is a prime concern of the nation's colleges and universities. The arena in which public policy that affects higher education is formulated is being changed with amazing swiftness. Federal programs to support students and institutions that have been built up over the last decade are being altered or possibly dismantled.

The purpose of the new federalism is to reverse the growth of the federal government and stimulate activity in the private sector. The steps being taken to change the national course are not directed against higher education, but they have pervasive impacts on students and institutions--and higher education is totally unprepared to respond to the new circumstances.

The financial base of higher education is changing. New relationships have to be structured with the state and local levels of government and with the private sector.

At no time in recent history has there been a greater need for colleges and universities to have good, solid information about their financial conditions and requirements to use in the bargaining process that will ensue. The results of this cooperative work on financial analysis is designed to help the institution develop the financial information they have to have.

Current financial assessments are now alerting us to a new set of concerns for higher education institutions in the 1980's. Our studies show that most institutions have been remarkedly resilient in coping with economic adversities of inflation and declining real resources--but they have served more students, maintained the quality of their academic programs, and balanced current budgets only by depleting their capital base of physical, financial, and intellectual resources.

Interpretation of financial ratios and indicators based on current revenues and expenditures without reference to what is happening to the capital side of the institutions risks grossly understating the financial difficulties that the institutions will experience if stringency continues after their reserves are depleted.

The overarching recommendation generated from the work of this Conference is that efforts should be greatly intensified to bring the capital base more fully into the assessment of financial conditions of the higher education institutions.

Recommendations based on the earlier Financial Measures Conferences for work still needed include:

1. The longitudinal financial data base for colleges and universities should be updated as additional information becomes available annually.

2. New work on costing in higher education should be related, where useful, to financial assessment.

3. Specialized financial data bases should be developed to meet the needs of particular groups of institutions.

4. More work should be done to identify and interpret characteristic or normal ranges for the values of financial indicators for different types of institutions.

5. Case studies should be prepared of the successful use of financial analysis by college and university management to turn their institutions around.

INTRODUCTION TO THE PROCEEDINGS

Judith G. Stich
Educational Policy Analyst
Corporation for Public Broadcasting

Annapolis IV was the fourth Financial Measures Conference sponsored jointly by the American Council on Education, the National Association of College and University Business Officers, and the National Center for Education Statistics. The three previous Conferences focused on the techniques of financial measurement in higher education. This Conference began to demonstrate the importance of the work of the past Conferences. And it did so in a very interesting way.

The speakers and participants represent a variety of vantage points and viewpoints, but at this Conference they all were concerned about a single critical problem in higher education. Everyone's thoughts last fall seemed to be focused on the continuing erosion of the capital base of higher education.

Simply stated, the problem is one of drawing down of resources of higher education in order to help compensate for the shortage of current funds as a result of rapidly rising energy cost and spiralling inflation throughout the economy.

External costs, the prices of energy, of books, of social security taxes, etc., have grown rapidly over the last ten years. Total funding available for higher education has not risen at a comparable rate. The nearly universal strategy for dealing with this apparent shortfall has been to squeeze internally controlled cost, primarily faculty salaries, expenditures for plant and equipment and maintenance. This eases the budget problems in the short-run, but increases the potential for crises in the medium- to long-run by using up our stock of capital without making adequate provisions to replenish it.

Faculty salaries which have declined relative to the general salary level make it difficult to attract and retain the scholars and teachers necessary to maintain the quality of academe. Decreases in library acquisitions budgets and equipment budgets result in students being trained with inferior equipment.

The participants at Annapolis IV arrived intent on letting each other know that the warning bells they had been laboring over at past Conferences do indeed work and they are now sounding the alarm.

From the opening paper presented by John Minter to the concluding paper on the political realities by George Weathersby the recurring theme was one of deficit, shortfall, stretching of limited resources and financial hazards for higher education.

In hindsight, there was a second interesting aspect to the Annapolis IV Conference. Not a single national or federal solution was proposed.

The Conference was held in late October when most analysts considered the election too close to call. It was clearly the view of the Conference that regardless of the outcome of the election, the states were the rock upon which much of our higher education system was built and it was the states who would be the most likely source of funds to alleviate the problems.

Unfortunately, the Conference did not provide a solution to the capital problem. It did, however, arrive at a clear, concise statement on the problem of the capital consumption occurring in higher education. Most researchers agree a proper statement of the problem is vital in recognizing the solution when it is presented. It was by describing the dimensions of the capital problem that the Conference made its contribution to our understanding.

THE PURPOSE OF THE CONFERENCE

Carol Frances

Chief Economist and Director
Division of Policy Analysis and Research
American Council on Education

Welcome to the Fourth Annual Annapolis Conference. Our first meeting, in 1977, was used to identify the needs for sharper analytic tools. We proposed specific financial indicators for further development at our second meeting, and our third meeting, in 1979, was used to measure our own progress in the field of financial indicator development and application at institutions. This conference is going to intensify our examination of the uses of financial indicators.

There has been an evolution in our objective. We have moved from financial measurement to financial assessment, which involves a much broader, much more comprehensive and much richer interpretation of the relationship between financial conditions and the other dimensions of institutional vitality. These include educational quality and the impact of the educational process on students. One of the particular strengths of this meeting is that it brings together those in institutional management with those from the public policy field. What we do is draw out the implications of advances in one domain for the work of those in the other. It is important to bring together people from the two aspects of financial assessment.

This meeting is co-sponsored by the National Association of College and University Business Officers and the National Center for Education Statistics. They will join in welcoming you and offering their perceptions of the purpose of this meeting.

THE PURPOSE OF THE CONFERENCE

Paul F. Mertins
Chief, University and College Survey and
Studies Branch
National Center for Education Statistics

On behalf of the National Center for Education Statistics, I would like to welcome you to the Conference. The Center has co-sponsored all four of these Conferences and Carol and I can share responsibility or blame for the original idea. The National Center feels fortunate to co-sponsor this development research in an important area of higher education finance.

THE PURPOSE OF THE CONFERENCE

Stephen D. Campbell

Director, Financial Management Center
National Association of College and University Business Officers

On behalf of Francis Finn and the NACUBO organization, I would like to welcome you to the Fourth Annapolis Conference on Financial Measures and Assessment. The program looks to be a rich one, with diversified topics and nationally-recognized speakers. From NACUBO's perspective, this conference is one of the few we participate in. We find it of definite value to come here and share new ideas and information on the issues of measurement and financial assessment. The better the grasp we have of this topic, the better we are able to serve our members--the financial managers at our colleges and universities.

Our members are keenly aware that their institutions strive to serve simultaneously multiple audiences with different purposes and needs. These include agencies of state and federal government, public and private funders, prospective students and their families, employers and graduates, accrediting bodies and professional associations. Obviously the three primary audiences are: enrolled students, faculty members, and other staff. These constituents tend to assess both the effectiveness and efficiency of the college or university from their limited perspective. They judge performance relative to the outcomes that they value and to the investment of money, time and other resources that they make. But for higher education then, achieving organizational effectiveness requires that preferences and priorities of different groups be understood. Activities and programs must be conducted that let

these preferences be met within the constraints of established institutional capabilities and environmental conditions. Since constituent preferences, environmental conditions, and institutional capabilities are constantly shifting, performance is hard to measure. Financial management becomes a dynamic function. Self-assessment, both financial and otherwise, becomes imperative. NACUBO has an obligation to provide its members tools and concepts which will help managment self-assess, identify and select prime groups and their needs, acquire the necessary resources, and eventually demonstrate to these constituents that the institution has performed well on their behalf. That is what we are all about. Again, welcome to Annapolis IV.

RATIO ANALYSIS IN HIGHER EDUCATION

John Minter
John Minter Associates

Reproduced with permission from Peat, Marwick, Mitchell & Co. - Ratio Analysis in Higher Education: A Guide to Assessing the Institution's Financial Condition

Introduction

Ever since the first national publication of standards for financial reporting for colleges and universities in 1935, preparers and users of financial statements of these institutions have worked toward improved communication of comparable financial information. It took three revisions of that 1935 work and an industry audit guide to develop the degree of comparability which is now possible. Even so, two other efforts had to be made to bring college and university financial statements to the point where fundamental questions about financial condition could begin to be answered with some clarity and precision.

One of these efforts was the creation of a sufficiently broad and reliable data base of historical financial information. This effort has been undertaken by John Minter Associates, Inc., of Boulder, Colorado (JMA). JMA's national sample of finar cial data drawn from audited financial statements of private and public institutions comprises the raw material used in this report. The methodology usec by JMA to standardize audited financial data, using standard classifications recommended in the most current authoritative literature on financial reporting by colleges and universities, provides the most consistent and useful data for analytical use so far available.

The other effort has been the work that has gone into the development of various ratios which, when viewed over several years, provide the user with the type of insight that has been missing from financial reporting in higher education. JMA itself had developed a broad set of ratios, some of which are used in this report. Others have been developed by Peat, Marwick, Mitchell & Co. (PMM) and some of these also are found in this study.

PMM's interest in ratios arose initially out of its need for indicators that would help alert its auditors to the more frequently encountered possibility that the institution whose financial statements it was examining might not be able to continue as a "going concern." If the reporting institution were about to be forced to cease financial operations, then the reader of the financial statements needed to be warned. In cases of impending insolvency or bankruptcy, generally accepted accounting principles for a going concern no longer apply. Rather, the reader must know what the results of liquidation might be, requiring a wholly different conceptual basis than that of the going concern.

Shortly after the AICPA industry audit guide for colleges and universities was made effective, PMM developed and circulated within the Firm a list of ratios which touched on a variety of operating and status trends that were to be used by its auditors when the going concern issue appeared to be imminent. This list of 54 trends made use of statistical as well as financial data, and even utilized information about management practices in this effort to help the auditor in reaching a conclusion whether to alert the financial statement reader to a likely cessation of activity as a going concern. This list in whole or in part has been distributed outside the Firm in the course of training programs and in articles published in professional journals.

During this same period of time a number of papers have been written and speeches made with the recurring theme of the need to determine the financial health, or lack of it, of institutions singly and in groups. Those interested in the ability of this nation's system of higher education to maintain its financial as well as intellectual vitality have been alarmed at some of the trends the coming decade seems to portend. If large numbers of colleges and universities are strained financially to the point of bankruptcy, the character and quality of this unique pluralistic system of higher education may be markedly weakened in academic as well as financial terms. Any insights which analysis of historical trends and future projections may provide that can alleviate this negative result surely would be most welcome.

THE FUNDAMENTAL QUESTIONS

There are three fundamental questions to which financial statement users seek answers:

1. Is the reporting institution clearly financially healthy or not as of the reporting date?
2. Is the reporting institution financially better off or not at the end than it was at the beginning of the year reported upon?
3. Did the reporting institution live within its means during the year being reported upon?

While most financial statement users understand that the full story can never be gleaned from financial information alone, nevertheless, these same users expect that at least some clues to the answers to these questions should lie within the financial report. PMM and JMA believe that the clues, in fact, are there; that what is needed is a structured analysis that is rational and consistent.

Most importantly, the analytical structure should focus first on information that is readily available in any set of financial statements that are prepared in accordance with the principles set forth in the authoritative literature on financial reporting for colleges and universities. That literature is found in Part 5 of *College and University Business Administration*, published in 1974 by the National Association of College and University Business Officers, Washington, D.C. This publication has been augmented since then through NACUBO's loose-leaf version of that publication referred to as the *Administrative Service*. This literature is in complete agreement with the AICPA's industry audit guide for colleges and universities, which is the reference for use by independent auditors who examine college and university financial statements.

Once a "first cut" answer is provided to the three basic questions enumerated earlier, the serious analyst can and should delve deeper into the underlying details of both financial and statistical data to fill in the entire picture. Nothing said here should lead the reader to believe that a few simple ratios and trends can provide one with a full understanding of all the elements and forces at work within an organization as complex as an institution of higher education. Still, if the analyst plunges deeper with answers to these three basic questions already in mind, he is more likely to make sense of the myriad details underneath. For the interested observer who has neither the time nor ability to cope with dozens of ratios and trends, this "first cut" may serve as a useful frame of reference for discussions with others having a common interest in the reporting institution.

A ratio, of course, is simply the relationship between two numbers. A trend of a ratio is the direction or tendency indicated by changes in the ratio over a period of years. In attempting to develop ratios and trends that would be responsive to the three basic questions, PMM has developed a simple hierarchical relationship between two sets of ratios, one set describing results, and the other set indicative of causes of some of the results. The first set, the Balance Sheet Ratios, is described in Chapter I. The second set, which we call the Operating Ratios, is described in Chapter II.

The most puzzling problem facing college financial statement users is the fact that virtually every such institution owns and manages financial resources that have important restrictions placed on them at the source. As a result, adding all of the resources together provides totals that are mathematically correct but provide little useful information at best, or misleading footings at worst. Several years ago, PMM developed the concept that the various types of funds may be segregated into three groups:

1. **Expendable funds** — resources which can be expended, or used up, to finance operating requirements, and to acquire plant assets (land, buildings and equipment). This group includes:

   current funds, quasi-endowment funds, unexpended plant funds, funds for renewal and replacement, and funds for retirement of indebtedness.

   In each case both unrestricted and restricted funds are included, although, of course, restricted amounts are so identified.

2. **Nonexpendable or capital funds** — resources which cannot be expended by reason of externally imposed restrictions, but which provide some present or future benefit to the institution. This group includes:

   restricted and unrestricted loan funds, endowment and term endowment funds, and annuity and life income funds.

   Unrestricted loan funds are included since the amounts are not expendable until loans are collected and assets transferred to other uses.

3. **Funds invested in plant** — fund group consisting of:

   assets representing the historical cost of land, buildings, equipment, library collections, and the like, along with the related liabilities and net investment in plant (equity).

This three-way classification presents a useful analytical framework for the development of ratios and trends that communicate the cumulative results of financial flows of all types. Building upon this structure, PMM has developed four balance sheet ratios that provide information useful in responding primarily to the first two of the three basic questions mentioned earlier.

All of the ratios are presented for three successive fiscal years, namely 1977, 1978 and 1979, thus providing data from which trends may be identified. The trends are important in developing a response to the second basic question. A three-year period alone certainly does not provide a basis for projecting the future, nor does it provide answers to all of the questions about the cumulative status as of the end of the three years. It does, however, provide some sense of direction without engulfing the reader in excessive historical data that may have little significance in the present or future.

BALANCE SHEET RATIOS

The four balance sheet ratios are as follows:

1. Ratio of Financial Viability
2. Ratio of Plant Equity to Plant Debt
3. Ratio of Expendable Fund Balances to Total Expenditures
4. Ratio of Capital Fund Balances to Total Expenditures.

The composition of these ratios and what they mean are described here to aid the reader in using them.

1. Ratio of Financial Viability

This ratio expresses the relationship of the total of the fund balances of all expendable funds to the balance of debt outstanding related to the financing of plant assets, as of the end of the fiscal year. The ratio is defined as follows:

Ratio of Financial Viability

Numerator: *Expendable fund balances*

Current funds, quasi-endowment funds, unexpended plant funds, funds for renewal and replacement, funds for retirement of plant indebtedness, including in each case restricted and unrestricted funds.

Denominator: *Plant debt whose related assets are investment in plant*

Notes, bonds and mortgages payable and interfund borrowing. Does not include debt whose related assets are cash or assets converting to cash in the normal course of business.

A ratio of 1:1 or greater means that there are sufficient expendable fund assets available to meet all related liabilities plus plant debt, without having to liquidate any plant assets or assets of capital funds. Assets of expendable funds usually consist of cash or items which will convert to cash in the normal course of business. While unexpired costs and deferred credits may be involved and could be factored out, their impact usually is slight.

It should be noted that restricted and unrestricted expendable fund balances are combined here. To be sure restrictions must be met and at a more detailed level restrictions may create a less favorable condition than this summary ratio would indicate. In practice, however, restricted funds are frequently used to finance operating and plant expenditures which would otherwise have to be paid for from unrestricted funds. Some institutions, furthermore, still fail to use the term "restricted" with the degree of precision and consistency called for in the literature. Aggregating restricted and unrestricted expendable fund balances helps to recognize these conditions. It also helps to avoid the problem presented by the numerous nonmandatory interfund transfers many institutions make each year. Finally by dealing with expendable fund balances and plant debt in this manner, the effect of interfund borrowing is placed in its proper perspective, that is, on a par with external borrowing.

This first balance sheet ratio is critical to the whole analytical process since it is possible to propose an absolute value for the dividing line between an institution clearly financially viable and one which is not clearly financially viable, and that would be a ratio of 1:1. At that point or above, an institution would appear to have no immediate short-term comprehensive financial viability problem.

Note that institutions whose viability ratio is less than 1:1 are not said to be financially nonviable, but rather that they are not clearly viable. A lower ratio indicates less liquidity. In the normal course of business, of course, all of the debt related to plant assets does not have to be paid off at once. However, the larger plant debt is in relation to spendable balances, the greater the demand in annual cash flows to service debt, and debt service can only be met from expendable funds.

A given institution may be able to exist with large debt and no expendable fund balances (or even negative balances). But this would be a hand-to-mouth existence at the mercy, usually, of short-term lenders, which is hardly conducive to the maintenance of healthy academic programs. Certainly, a viability ratio significantly below 1:1 with a trend going lower, is worthy of more careful scrutiny and analysis both by institutional managers and potential lenders.

We note in passing that for some public institutions the calculation of this ratio presents difficulties because plant debt, in whole or in part, is carried on the books of another public authority. Also for this reason, interinstitutional comparisons of this ratio in the public sector must be undertaken with caution.

2. Ratio of Plant Equity to Plant Debt

This ratio expresses the relationship of the excess of the cost of plant assets over related debt (equity) to the balance of the related debt. The ratio is defined as follows:

Ratio of Plant Equity to Plant Debt

Numerator: *Net investment in plant*

Denominator: *Plant debt whose related assets are invested in plant.*

Notes, bonds and mortgages payable and interfund borrowing. Does not include debt whose related assets are cash or assets converting to cash in the normal course of business.

To some degree this ratio may indicate the possibility of increased long-term borrowing power, or the absence of it. For example, a college-owned plant costing $20 million having plant debt balances totalling $2 million is more likely to be able to obtain additional long-term loans than an institution having similar plant assets and $10 million in plant debt balances. Most lenders are primarily concerned with the reliability of future cash flows to pay off debt; yet mortgagable real property is still an important factor in obtaining significant long-term secured loans.

This ratio takes on added significance when the viability ratio falls significantly below 1:1. While no reliable dividing line is readily available for this equity to debt ratio, in all probability a ratio of less than 3:1 would leave little margin for securing substantial additional long term loans.

3. Ratio of Expendable Fund Balances to Total Expenditures

In this ratio the same definition of expendable fund balances is used as in the viability ratio (balance sheet ratio #1). This ratio relates expendable fund balances to the total of current funds expenditures and mandatory transfers. The ratio is defined as follows:

Ratio of Expendable Fund Balances to Total Expenditures

Numerator: *All expendable fund balances*

Current funds, quasi-endowment funds, unexpended plant funds, funds for renewal and replacement, funds for retirement of plant indebtedness, including in each case restricted and unrestricted funds.

Denominator: *Total current funds expenditures and mandatory transfers*

This ratio serves several purposes. First it is a check on the viability ratio. An institution could show a high viability ratio even though its expendable fund balances were relatively small. This would occur when plant debt was insignificant, a condition found in some institutions. The higher this ratio is, the greater the margin of safety the institution has to cope with unexpected problems.

Secondly, it seems reasonable to expect that expendable fund balances should increase at least in proportion to the rate of growth of operating size. If not, the same dollar amount of expendable fund balances will provide less margin for adversity as the institution grows in dollar level of expenditure. While no absolute value may be given as a dividing line for this ratio presently, it is likely that a ratio of .3:1 or better would be required to reinforce the viability ratio to a significant extent.

4. Ratio of Capital Fund Balances to Total Expenditures

This ratio relates the total of the balances of nonexpendable or capital funds, as defined earlier, to the same operating size indicator used in balance sheet ratio #3. So the ratio is defined thus:

Ratio of Capital Fund Balances to Total Expenditures

Numerator: *Nonexpendable or capital funds*

Restricted and unrestricted loan funds, endowment and term endowment funds and annuity and life income funds.

Denominator: *Total current funds expenditures and mandatory transfers.*

Capital funds cannot be expended for everyday operating and plant requirements, yet they do provide benefits such as endowment income, loans which help students finance their tuition and fees, and deferred giving which ultimately will become available for institutional use.

Again no reliable index exists presently to indicate how large these balances should be. Certainly capital funds need to be increased as operating size increases in order that these funds continue to provide the same relative benefits to the institution.

Private institutions are more likely to have significant capital funds than public institutions. In private institutions, preliminary data would indicate that this ratio will frequently amount to twice that of the third balance sheet ratio described earlier. Instances of this ratio exceeding 1:1 are not unheard of while the third ratio seldom, if ever, equals 1:1. As with the first three balance sheet ratios, the higher the value of this ratio the more favorable the financial condition.

Exhibit A

Caliper College
Balance Sheet

June 30, 19____ with comparative figures at June 30, 19____

Assets

Current Funds

	Current Year	Prior Year
Unrestricted		
Cash	$ 210,000	$ 110,000
Investments	450,000	360,000
Accounts receivable, less allowance of $18,000 both years	228,000	175,000
Inventories, at lower of cost (first-in, first-out basis) or market	90,000	80,000
Prepaid expenses and deferred charges	28,000	20,000
Total unrestricted	1,006,000	745,000
Restricted		
Cash	145,000	101,000
Investments	175,000	165,000
Accounts receivable, less allowance of $18,000 both years	68,000	160,000
Unbilled charges	72,000	—
Total restricted	460,000	426,000
Total current funds	1,466,000	1,171,000

Loan Funds

Cash	30,000	20,000
Investments	100,000	100,000
Loans to students, faculty, and staff, less allowance of $10,000 current year and $9,000 prior year	550,000	382,000
Due from unrestricted funds	3,000	—
Total loan funds	683,000	502,000

Endowment and Similar Funds

Cash	100,000	101,000
Investments	13,900,000	11,800,000
Total endowment and similar funds	14,000,000	11,901,000

Liabilities and Fund Balances

Current Funds

		Current Year	Prior Year
Unrestricted			
Accounts payable		$ 125,000	$ 100,000
Accrued liabilities		20,000	15,000
Students' deposits		30,000	35,000
Due to other funds		158,000	120,000
Deferred credits		30,000	20,000
Fund balance	(A)	643,000	455,000
Total unrestricted		1,006,000	745,000
Restricted			
Accounts payable		14,000	5,000
Fund balances	(A)	446,000	421,000
Total restricted		460,000	426,000
Total current funds		1,466,000	1,171,000

Loan Funds

Fund balances			
U.S. government grants refundable		50,000	33,000
University funds			
Restricted		483,000	369,000
Unrestricted		150,000	100,000
Total loan funds	(E)	683,000	502,000

Endowment and Similar Funds

Fund balances			
Endowment	(E)	7,800,000	6,740,000
Term endowment	(E)	3,840,000	3,420,000
Quasi-endowment — unrestricted	(A)	1,000,000	800,000
Quasi-endowment — restricted	(A)	1,360,000	941,000
Total endowment and similar funds		14,000,000	11,901,000

Assets (continued)

Annuity and Life Income Funds

Annuity funds	Current Year	Prior Year
Cash	$ 55,000	$ 45,000
Investments	3,260,000	3,010,000
Total annuity funds	3,315,000	3,055,000
Life income funds		
Cash	15,000	15,000
Investments	2,045,000	1,740,000
Total life income funds	2,060,000	1,755,000
Total annuity and life income funds	5,375,000	4,810,000

Plant Funds

Unexpended		
Cash	275,000	410,000
Investments	1,285,000	1,590,000
Due from unrestricted current funds	150,000	120,000
Total unexpended	1,710,000	2,120,000
Renewals and replacements		
Cash	5,000	4,000
Investments	150,000	286,000
Deposits with trustees	100,000	90,000
Due from unrestricted current funds	5,000	—
Total renewals and replacements	260,000	380,000
Retirement of indebtedness		
Cash	50,000	40,000
Deposits with trustees	250,000	253,000
Total retirement of indebtedness	300,000	293,000
Investment in plant		
Land	500,000	500,000
Land improvements	1,000,000	1,110,000
Buildings	25,000,000	24,060,000
Equipment	15,000,000	14,200,000
Library books	100,000	80,000
Total investment in plant	41,600,000	39,950,000
Total plant funds	43,870,000	42,743,000

Agency Funds

Cash	50,000	70,000
Investments	60,000	20,000
Total agency funds	110,000	90,000

Liabilities and Fund Balances (continued)

Annuity and Life Income Funds

Annuity funds	Current Year	Prior Year
Annuities payable	$ 2,150,000	$ 2,300,000
Fund balances (E)	1,165,000	755,000
Total annuity funds	3,315,000	3,055,000
Life income funds		
Income payable	5,000	5,000
Fund balances (E)	2,055,000	1,750,000
Total life income funds	2,060,000	1,755,000
Total annuity and life income funds	5,375,000	4,810,000

Plant Funds

Unexpended			
Accounts payable		10,000	—
Notes payable		100,000	—
Bonds payable		400,000	—
Fund balances			
Restricted	(A)	1,000,000	1,860,000
Unrestricted	(A)	200,000	260,000
Total unexpended		1,710,000	2,120,000
Renewals and replacements			
Fund balances			
Restricted	(A)	25,000	180,000
Unrestricted	(A)	235,000	200,000
Total renewals and replacements		260,000	380,000
Retirement of indebtedness			
Fund balances			
Restricted	(A)	185,000	125,000
Unrestricted	(A)	115,000	168,000
Total retirement of indebtedness		300,000	293,000
Investment in plant			
Notes payable	(B)	790,000	810,000
Bonds payable	(B)	2,200,000	2,400,000
Mortgages payable	(B)	400,000	200,000
Net investment in plant	(C)	38,210,000	36,540,000
Total investment in plant		41,600,000	39,950,000
Total plant funds		43,870,000	42,743,000

Agency Funds

Deposits held in custody for others	110,000	90,000
Total agency funds	110,000	90,000

In Exhibit A, we have produced the Balance Sheet of Caliper College, an imaginary institution,* and have indicated, for purposes of illustration, where the numbers are found to obtain the numerator and denominator values for the four ratios previously defined. The values in this instance are as follows:

		Current Year Amount (000 omitted)		Ratio	Prior Year Amount (000 omitted)		Ratio
Ratio of financial viability	Expendable Fund Balances (A) / Plant Debt (B)	$5,209 / 3,390	=	1.537 / 1	5,410 / 3,410	=	1.587 / 1
Ratio of plant equity to plant debt	Net Investment in Plant (C) / Plant Debt (B)	38,210 / 3,390	=	11.271 / 1	36,540 / 3,410	=	10.716 / 1
Ratio of expendable funds to total expenditures	Expendable Fund Balances (A) / Total Current Funds Expenditures and Mandatory Transfers (D*)	5,209 / 7,756	=	0.672 / 1	5,410 / 7,550	=	0.717 / 1
Ratio of capital funds to total expenditures	Capital Fund Balances (E) / Total Current Funds Expenditures and Mandatory Transfers (D*)	15,543 / 7,756	=	2.004 / 1	13,167 / 7,550	=	1.744 / 1

*See Exhibit B. page 10.

*The financial statements of Caliper College are an adaptation of the statements for Sample College appearing in NACUBO's *Administrative Service*, Part 5. We have adhered to the format recommended in that publication with minor modifications. The balance sheet figures (Exhibit A) for Caliper are the same as those for Sample; the revenue and expenditure figures in the Statement of Current Funds Revenues, Expenditures and Other Changes (Exhibit B) have been substantially altered except for the totals.

FACTORS UNDERLYING FINANCIAL CONDITION: THE OPERATING RATIOS

In this chapter we describe three sets of operating ratios:

- Net Operating Ratios
- Contribution Ratios
- Allocation Ratios.

All three sets of ratios are concerned with current funds only. We believe these ratios can be employed to clarify the results of operations and also to provide clues as to the causes of the financial condition which is reflected in the balance sheet ratios.

NET OPERATING RATIOS

Three current funds net operating ratios are presented:

- Net Total Revenues as Percent of Total Revenues
- Net Educational and General Revenues as Percent of Total Educational and General Revenues
- Net Auxiliary Enterprise Revenues as Percent of Total Auxiliary Enterprise Revenues.

Net Total Revenues as Percent of Total Revenues. This ratio indicates whether the total operations of the institution for the year resulted in a surplus or a deficit. Generally speaking, the larger the surplus the stronger the institution's financial position. Large deficits are almost always a sign of financial difficulty, particularly if they occur in successive years.

This ratio provides the most succinct answer to the question: Did the reporting institution live within its means during the year being reported upon?

The ratio is defined as follows:

Net Total Revenues as a Percent of Total Revenues

Numerator: *Net total revenues*
All current fund revenues less all current fund expenditures and mandatory transfers.
Exclude: All nonmandatory transfers and other changes.

Denominator: *Total revenues*
All current fund revenues.
Exclude: All transfers.

The next two ratios indicate which component of the institution's operations accounts for the surplus or deficit.

Net Educational and General Revenues as Percent of Total Educational and General Revenues. This ratio indicates whether the revenues in support of the central functions of the institution—instruction, research, public service—were sufficient to meet the expenditures for those functions.

This ratio is defined as follows:

Net Educational and General Revenues as a Percent of Total Educational and General Revenues

Numerator: *Net educational and general revenues*
All educational and general revenues less all educational and general expenditures and mandatory transfers.
Exclude: Auxiliary enterprises, intercollegiate athletics, hospitals, and independent operation revenues, expenditures and mandatory transfers, and all nonmandatory transfers.

Denominator: *Total educational and general revenues*
All educational and general revenues—tuition and fees, governmental revenues, private gifts, grants and contracts, endowment income, sales and services of educational activities, contributed services and other revenues.
Exclude: Auxiliary enterprises, intercollegiate athletics, hospitals and independent operation revenues, BEOG, and state scholarships.

For the purposes of this report, Total Educational and General Revenues equals Total Revenues less Sales and Services of Auxiliary Enterprises, intercollegiate athletics, hospitals and independent operations.

Net Auxiliary Enterprise Revenues as Percent of Total Auxiliary Enterprise Revenues. This ratio indicates whether the revenues in support of auxiliary enterprises—housing, food service, the bookstore and the like—were sufficient to meet the expenditures and mandatory transfers for those services. Frequently, as will be seen later, auxiliary enterprises are found to be substantially out of balance, sometimes producing substantial surpluses, in other cases large deficits. In general the best posture for the institution is to seek a break-even result since large deficits will have to be underwritten from sources intended for instruction (tuition fees, endowment income), and large surpluses may lead to protests from students that the institution is overcharging for food and shelter.

This ratio is defined as follows.

Net Auxiliary Enterprise Revenues as a Percent of Total Auxiliary Enterprise Revenues

Numerator: *Net auxiliary enterprise revenues*
Total auxiliary enterprise revenues less total auxiliary enterprise expenditures and mandatory transfers.
Exclude: Educational and general, intercollegiate athletics, hospitals, and independent operation revenues, expenditures and mandatory transfers, and all nonmandatory transfers.

Denominator: *Total auxiliary enterprise revenues*
Total auxiliary enterprise revenues. Includes the bookstore, union, residence halls, food services and other self-supporting activities for the students, faculty and staff.
Exclude: Educational and general, intercollegiate athletics, hospitals and independent operation revenues.

CONTRIBUTION RATIOS

These ratios derive from the main sources of revenue:

- Tuition and Fees
- Federal Government Revenues
- State Government Revenues
- Private Gifts, Grants and Contracts
- Endowment Income

and, in the case of some institutions, mostly public:

- Local Government Revenues.

In each instance the contribution is expressed as a percentage of total educational and general *expenditures and mandatory transfers*. An alternative, frequently employed, is to express these revenue sources as a percentage of total *revenues*. We find however that such an approach can be misleading. For example, one might conclude that tuition and fees are keeping pace if their percentage of revenues remains constant, but if total expenditures and mandatory transfers are rising more rapidly than revenues, it can be seen that tuition and fees are actually falling behind as a contributor. Thus the analyst is alerted to a condition which would otherwise be overlooked.

For each of these ratios the *numerator* is defined as follows:

Tuition and Fees
All tuition and fees as charged. Includes not only those paid but also those charged but not collected (the institutional scholarships in the form of fee waivers). Also includes all miscellaneous fees charged against all students.
Exclude: Room and board fees, intercollegiate athletic fees, and miscellaneous fees not charged to all students.

Federal Government Revenues
All grants, appropriations and contracts received from the federal government including campus-based student aid programs. Includes CW-SP, SEOG, LEEP, research grant monies, and indirect cost reimbursements.
Exclude: BEOG and NDSL.

State Government Revenues
All grants, appropriations and contracts received from state sources including any indirect cost reimbursements.
Exclude: State scholarships where the institution has not selected the recipient.

Local Government Revenues
All grants, appropriations and contracts received from local government sources including any indirect cost reimbursements.

Private Gifts and Grants
All gifts and grants received from private sources, including gifts in kind. Also includes grants from religious orders.
Exclude: Contributed services and any government revenue.

Endowment Income
All unrestricted endowment income earned and restricted endowment income utilized for current operations.
Exclude: Realized gains on investments, expired term endowment, expired annuity and life income contracts, and interest earned on other fund investments.

For all of these ratios the *denominator* is the same.

Total Educational and General Expenditures and Mandatory Transfers
All expenditures for educational and general purposes—instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, scholarships and fellowships, and mandatory transfers related to educational and general functions such as those for principal and interest, renewal and replacement, matching grants for loan funds.
Exclude: Auxiliary enterprises, intercollegiate athletics, hospitals, and independent operation expenditures and their related mandatory transfers. Also excludes BEOG, state scholarships, and nonmandatory transfers.

ALLOCATION RATIOS

These ratios derive from the eight functional categories of Educational and General Expenditures:

- Instruction
- Research
- Public Service
- Academic Support
- Student Services
- Institutional Support
- Operation and Maintenance of Plant
- Scholarships and Fellowships.

In each instance the allocation is expressed as a percentage of total Educational and General Expenditures.

These ratios are especially useful in trend analysis, in determining whether a particular category is obtaining a growing or dwindling share of the total. The ratios are also useful in interinstitutional comparisons where differences in allocation ratios among similar institutions may lead to useful explorations of underlying conditions, e.g.: Why does our institution spend proportionately more on Operation and Maintenance of Plant than yours, and thus you are able to put more funds into Instruction?

For each of these ratios the *numerator* is defined as follows:

Instruction
All instructional expenditures for the institution including graduate schools, evening extension programs, and continuing education. Also includes departmental research not separately budgeted, and organized activities related to educational departments. Instructional expenditures are for both credit and noncredit courses, occupational, vocational, and remedial instruction. Includes the instructional departments' portion of work study and staff benefits.
Exclude: Academic administration when administration is the primary assignment, faculty development, and intercollegiate athletic expenditures.

Research
All expenditures for activities specifically organized to produce research outcomes, both those sponsored by external agencies and separately budgeted programs of the institution.
Exclude: Sponsored teaching programs or sponsored nonresearch programs.

Public Service
All expenditures for activities to provide noninstructional services to individuals and groups external to the institution. Includes off campus work study, conferences and seminars.
Exclude: Public relations for the institution, alumni and development activities, and Upward Bound.

Academic Support
All expenditures that provide a support service to the instructional, research, and public service functions. Includes libraries, audiovisual, museums, galleries, academic computing support, academic administration, faculty development, demonstration schools, and *medical clinics when the hospital is independent from the institution.* Also includes the academic support portion of work study and staff benefits.

Student Services
All expenditures for functions that contribute to the health and well-being of the student—Admissions and Registrar's offices, deans of student affairs (men's and women's), financial aid offices, medical services operated for students (unless they are self-supporting), functions that contribute to the student's cultural and social development (cultural events, newspapers, yearbooks, intramural athletics), daycare for students, counseling and guidance. Also includes the student services portion of work study and staff benefits.
Exclude: Commencement and intercollegiate athletics.

Institutional Support
All functional expenditures that relate to the day-to-day operations or business management of the institution. These include expenditures for the central administration and governing board, planning and development, fiscal operations and legal services, institutional research and computing support, employee personnel and records, logistical activities, security and transportation, alumni and public relations, fund raising, commencement, and all other miscellaneous expenditures. Also includes the institutional support portion of work study and staff benefits.
Exclude: Other department staff benefits, Registrar's office, Admissions' office, financial aid office, academic dean, academic computing, payments for principal and interest on plant debt, student newspaper and yearbook.

Operation and Maintenance of Plant
All current operating expenses related to the general operation and maintenance of the physical plant. Includes utilities and maintenance, fire protection, property insurance, and the plant portion of work study and staff benefits.
Exclude: Principal and interest payments on plant, security and transportation.

Scholarships and Fellowships
All scholarships and fellowships granted to students in which the institution selects the recipient. Includes SEOG, LEEP, and athletic scholarships.
Exclude: CW-SP, BEOG, state scholarships, NDSL matching and tuition remissions to faculty and staff.

The *denominator* for all of these ratios is the same as for the contribution ratios.

Exhibit B

Caliper College

Statement of current funds revenues, expenditures, and other changes

Year Ended June 30, 19____

	Unrestricted	Current Year Restricted	Total	Prior Year Total
Revenues				
Tuition and fees	$3,210,000		$3,210,000	$3,000,000
Federal grants and contracts	20,000	$ 375,000	395,000	350,000
State grants and contracts	475,000	25,000	500,000	450,000
Private gifts, grants, and contracts	1,080,000	405,000	1,485,000	1,585,000
Endowment income	325,000	209,000	534,000	500,000
Sales and services of educational activities	190,000		190,000	195,000
Sales and services of auxiliary enterprises	2,200,000		2,200,000	2,100,000
Expired term endowment	40,000		40,000	
Other sources (if any)				
Total current revenues	7,540,000	1,014,000	8,554,000	8,180,000
Less: sales and services of auxiliary enterprises	2,200,000	—	2,200,000	2,100,000
Educational and general revenues	5,340,000	1,014,000	6,354,000	6,080,000
Expenditures and mandatory transfers				
Educational and general				
Instruction	2,211,000	489,000	2,700,000	2,625,000
Research	25,000	325,000	350,000	300,000
Public service	25,000	35,000	60,000	55,000
Academic support	489,000		489,000	490,000
Student services	276,000		276,000	240,000
Institutional support	679,000		679,000	785,000
Operation and maintenance of plant	600,000		600,000	580,000
Scholarships and fellowships	95,000	165,000	260,000	250,000
Educational and general expenditures	4,400,000	1,014,000	5,414,000	5,370,000
Mandatory transfers for:				
Principal and interest	90,000		90,000	50,000
Renewals and replacements	100,000		100,000	80,000
Loan funding matching grants	2,000		2,000	
Total educational and general	4,592,000	1,014,000	5,606,000	5,500,000
Auxiliary enterprises				
Expenditures	1,830,000		1,830,000	1,730,000
Mandatory transfers for:				
Principal and interest	250,000		250,000	250,000
Renewals and replacements	70,000		70,000	70,000
Total auxiliary enterprises	2,150,000		2,150,000	2,050,000
Total expenditures and mandatory transfers (D)	6,742,000	1,014,000	7,756,000	7,550,000
Other transfers and additions/(deductions)				
Excess of restricted receipts over transfers to revenues		45,000	45,000	40,000
Refunded to grantors		(20,000)	(20,000)	
Unrestricted gifts allocated to other funds	(650,000)		(650,000)	(510,000)
Portion of quasi-endowment gains appropriated	40,000		40,000	
Net increase in fund balances	$ 188,000	25,000	213,000	160,000

Total Educational and General Expenditures

All expenditures for educational and general purposes — instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, scholarships and fellowships, and mandatory transfers related to educational and general functions such as those for principal and interest, renewal and replacement, matching grants for loan funds.

Exclude: Auxiliary enterprises, intercollegiate athletics, hospitals, and independent operation expenditures and their related mandatory transfers. Also excludes BEOG, state scholarships and nonmandatory transfers.

The allocation ratio for Mandatory Transfers is not calculated here.

In Exhibit B we have reproduced the Statement of Current Funds Revenues, Expenditures and Other Changes of Caliper College, from which can be calculated the three Net Operating Ratios, the six Contribution Ratios and the eight Allocation Ratios. The values in this instance are as follows:

Net operating ratios

		Current Year			Prior Year		
Net Total Revenues as Percent of Total Revenues	=	$\frac{\$8,554,000 - 7,756,000}{8,554,000}$	=	9.3%	$\frac{\$8,180,000 - 7,550,000}{8,180,000}$	=	7.7%
Net Educational and General Revenues as Percent of Total Educational and General Revenues	=	$\frac{6,354,000 - 5,606,000}{6,354,000}$	=	11.8%	$\frac{6,080,000 - 5,500,000}{6,080,000}$	=	9.5%
Net Auxiliary Enterprise Revenues as Percent of Total Auxiliary Enterprise Revenues	=	$\frac{2,200,000 - 2,150,000}{2,200,000}$	=	2.3%	$\frac{2,100,000 - 2,050,000}{2,100,000}$	=	2.4%

Contribution ratios (all expressed as a percentage of total educational and general expenditures and mandatory transfers)

	Current year	Prior year
Tuition and Fees	57.3%	54.5%
Federal Government Revenues	7.0	6.4
State Government Revenues	8.9	8.2
Private Gifts and Grants	26.5	28.8
Endowment Income	9.5	9.1

Allocation ratios (all expressed as percentage of total educational and general expenditures and mandatory transfers)

Instruction	48.2	47.7
Research	6.2	6.6
Public Service	1.1	1.0
Academic Support	8.7	8.9
Student Services	4.9	4.4
Institutional Support	12.1	13.9
Operation and Maintenance of Plant	10.7	10.5
Scholarships and Fellowships	4.6	4.5

The Net Operating Ratios provide the most succinct answers to the third question: Did the institution live within its means during the period reported upon? At Caliper the results were positive in all three ratios for both years with the current year producing somewhat more favorable financial results than the prior year. The Contribution Ratios reveal some shifts in revenue sources, with Tuition and Fees making a significantly larger contribution in the current year than in the prior year, while the largest decrease was in Private Gifts and Grants. Allocations to primary functions did not fluctuate much in the two-year period, with Institutional Support showing the most significant decline in allocation.

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COMPUTER MODELING AND COMPARATIVE FINANCIAL ASSESSMENT: A RECONSIDERATION

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At a recent higher education management conference, one of the speakers began by describing her qualifications. She had been dean of a small college as well as assistant to the president of a major research university. More importantly, she had written a dissertation on T.S. Eliot and, thus, was an expert on despair.

I trust that my comments will not leave you in despair, although despair is not irrelevant to the current discussion. In our work with college and university administrators, we often solicit their opinions about various financial measures and financial comparisons. The words we hear are: arbitrary, static, inexorable, and unrelated to policy. Those of you who have worked with or read about financial planning models have heard such criticisms as: arbitrary, static, incomprehensible, and unrelated to policy. So we may have a great deal in common.

In defense of planning models, a professor of planning at Cornell has argued that planning, like Christianity, is a great idea that has never been tried. But planning models have been tried in many places over the last decade, and by and large, they haven't worked. Fortunately, however, there are some new ideas in planning models that are related to the ongoing concerns of this conference -- and that may point our way out of the current wasteland.

Current Status of Planning Models

Conventional wisdom holds that planning models must be tailored to the specific needs of the institution, and that achieving this requires the active involvement of a senior administrator (Wyatt, Landis and Emery, 1979). Policy makers in higher education and elsewhere have learned the hard way that models built by technical experts in outside agencies or consulting firms are likely to be "black boxes", both incomprehensible and irrelevant to institutional needs (Greenberger, Crenson, and Crissey, 1976; Mason, 1976; Keen, 1980). To achieve useful results from models, policymakers must specify the goals of the product, the computation structure, the primary planning variables, the level of data aggregation, and even the format of the reports.

How is this custom tailoring to be achieved? One approach is to build models from scratch, as has been done successfully at Dartmouth (Kemeny, 1973), Stanford (Hopkins and Massy, 1981), and the University of Pennsylvania (Strauss, Porter, and Zemsky, 1979). The obvious problem with this approach is that modeling is often sidetracked by the technical questions of systems design: choice of programming language, internal data formats, program logic, and so on. Very few policymakers are either willing or able to participate in or manage such a project.

A compromise between off-the-shelf packaged models and locally-designed models is the so-called modeling system or modeling language, which attempts to provide a working structure without the content. That is, each institution can create its own data definitions, relationships (equations), and report formats, without having to design the system itself. The most widely used such system in higher education is EFPM, developed at EDUCOM wtih financial support from the Lilly Endowment.

EFPM, based on the models built at Stanford by Dickmeyer, Hopkins, and Massy (1979), is currently used by over a hundred colleges and universities in thirty states, Australia, and Belgium. It allows administrators to build and operate (via time shared computer terminals) forecasting and policy tradeoff models for operating budgets; for sub-units such as athletics, hospitals, and libraries; for specialized problem areas like endowment and financial aid; and for such non-financial areas as faculty tenure and student enrollment (Updegrove, 1981).

Modeling and Financial Conditions - Problems

How is this modeling system related to comparative measures of financial conditions? In a presentation to this conference two years ago (Updegrove, 1978), I suggested that EFPM and its large (if diverse) user base represent a unique opportunity:

- We have a flexible modeling system that can accomodate new data definitions and financial viability measures;
- We have a group of motivated and trained administrators who use the system for planning and budget decisions (and are thus very concerned about the quality of the data and relationships in their models);
- All the institutions use the same computer. (We decided that it would not be cost effective to distribute copies of the software for installation on local computers; instead users dial in to an international data communications network to access EFPM on the IBM computer at Cornell University.)

I suggested then that, if we could get some of the users of this system to agree on indicators, it would be quite simple to put those indicators into on-line files at Cornell, making them accessible to anyone doing modeling with this system. Whether they would be cross-section ratios or indicators of rates of change was unclear. Research done at Stanford suggested that more attention ought to be focused on growth rates rather than on static ratios.

Somewhat more speculatively, I suggested that modeling might be a kind of Rorschach test for administrators; that is, the way they structured the level of aggregation, the primary planning variables, and the linkages among variables might indicate something about the financial health of the institution.

I had hoped that if I came back to this session in 1980 I would have startling results for you. I do have results, but hardly startling ones. This comparative modeling has not happened at all. I think it is important to explain why.

First, it seems that EFPM users have been too busy learning the system, building models, and applying model results to their own institutions. What energy is left over has been devoted to improving the models or to building more models of other units.

Second, there still seems to be little agreement on what defines the relevant reference group or the relevant measures of financial health. Although one new subscriber expressed disappointment that EFPM did not provide access to a data base assembled from all user institutions, most subscribers have expressed indifference to the concept.

Third, there has been no active encouragement by EDUCOM. We conceived our role as being focused on software development, documentation, and technical training, rather than on specific recommendations as to model content or policy options. We were, in fact, concerned that our ascribed technical expertise might lead users to accept uncritically even casual suggestions regarding financial indicators.

Modeling and Financial Conditions - Prospects

There may be solutions to all three of these problems. First, we have recently observed an increase in user interest in sharing. Meetings of the users group are well attended, user contributions to our monthly newsletter result in numerous inquiries, and users have begun to trade models and sub-models by electronic mail. For example a tenure model built at Michigan State was used as the basis for the model at the University of Colorado, and a student financial aid model developed at Georgetown was soon adapted at Haverford and Swarthmore.

Second, regarding financial measures, there is widespread interest among EFPM users in the preliminary versions of the NACUBO Financial Self-Assessment Workbook, developed by Nathan Dickmeyer and K. Scott Hughes (1980). Although intended primarily for colleges, the Workbook promises to be a widely-used and influential guide.

Third, regarding EDUCOM's role, we have been working with Dickmeyer to build the Workbook calculations into an EFPM model. EFPM subscribers can now use the familar EFPM syntax to input the data and display reports for all Workbook calculations. Plans are underway to provide a facility for contributing institutional data to a common data base and for comparing results with specific reference groups.

These are hopeful indications, that users of financial planning models may soon enjoy the benefits of comparative assessment, and that we may be on the road to taking advantage of the information exchange opportunities in this system. Furthermore, the combination of a large group of institutions (including several homogeneous subgroups) using the same modeling system on the same computer, with a technically-compatible financial self-assessment methodology, could result in a significant advance in our understanding of financial conditions and their measurement. We must not become too optimistic, however, lest we be accused (perhaps at Annapolis 5) of measuring out institutional lives with computerized coffee spoons.

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COMPUTERIZED APPLICATIONS OF FINANCIAL ASSESSMENT TECHNOLOGY

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National Association of College
and University Business Officers

I am going to be stepping out of my role as Director of NACUBO's Financial Management Center and relate some war stories of the past four years that I've been involved in. Financial stringencies have been imposing an increasingly heavy burden on most colleges and universities during the past decade, forcing them to manage their resources more carefully. In an effort to understand and control these forces that bear continually upon the income and expense sides of the operating budget, a major theme in higher education management has been how to design and develop planning models that will be genuinely useful to decision-makers at colleges and universities--models that will actually be used to help solve real and important problems.

The discussion which follows highlights my experience with two such models:

> IEP from NCHEMS, the Information Exhange Procedures established by the National Center for Higher Education Management Systems, and EFPM--EDUCOM's Financial Planning Model.

Let me begin with a quick overview of IEP. It was developed by NCHEMS as a set of standard definitions and procedures for collecting information about disciplines and student degree programs, outcomes of instructional programs, and general institutional characteristics. The information that resulted from IEP was intended to provide a useful basis for comparisons of past campus costs and outcomes. NCHEMS documentation stressed the importance of cost information for internal management purposes, with some emphasis on the possible utility of inter-institutional exchange of cost data. But in 1975, the State Council for Higher Education in Virginia decided to take this particular set of procedures and software and mandate that it be installed on the computers of the twenty-two colleges and universities in the state of Virignia. The Council staff was attempting to take something developed for institutions and use it as a state-level reporting system.

In 1975-76, you had twenty-two state colleges and universities investing significant amounts of money, personnel, and time in installing software modules that were not necessarily compatible with the many different computers in use at the time. The assumption by Council staff that the institutions could implement IEP with relative ease and minimal cost did not stand up in the face of the implementation experiences. There was a wide range in the capability of the institutions' accounting systems to support IEP. There followed, then, a wide range in the cost of implementation. This lack of compatibility between the installed software and ongoing personnel and student registration systems also created great difficulties. Many institutions' operational data system could not provide the required data and the manual data collection effort to "correct" the

data was too large to justify the cost. In addition, at some institutions the procedures recommended conflicted with internal planning and management data needs. The critiques that institutional researchers and financial managers at the institutions agree upon following the implementation phase were:

(1) The system was imposed and was perceived by the universities and colleges as being imposed from above. This automatically set up defense mechanisms and reactions not inducing the best climate for reception to a computer-based modeling system.

(2) During implementation, there were a series of hardware breakdowns, design difficulties, and lack of documentation, all of which caused delays, confusion, and loss of confidence in planning models.

(3) The system was perceived as an attempt to quantify and "average" all institutional costing data, the real future of which was unknown. The institutions continually asked the State Council staff what they were going to do with this information. They never received an articulate answer. Are you going to use the costing data to develop state budget formulas? The institutional representatives never heard yeah or neah.

(4) The system was "oversold" as a comprehensive reporting system. In the beginning, the colleges were told that instead of submitting enrollments, degrees awarded, and reports on students by level, by program, the institutions would be required to submit only one tape report to the Council staff, which would be derived out of the IEP package file. By using this plus the costing component in IEP, the institutions would have a comprehensive reporting system. But soon after the first reports were due, supplemental requests for information were made.

(5) Most of the data collected served no useful purpose at the institutional level. I was on the phone to my previous boss a few days ago and read him these conclusions. When we come to this one--"most of the data collected served no purpose," he said, "No, I would disagree with you on that." And I said, "Why?" He said, "I disagree with the word "most"--all of the data collected served no purpose."

(6) The system cost too much. From an institutional perspective, the time and personnel which went into the implementation of IEP was a waste. Even if it had cost only $1,000, it would have been too much for what the colleges and universities received by way of returned benefits.

(7) Too many arbitrary allocation decisions were allowed. How do you treat a dean's time and effort? How do you handle department chairmen? Should all of their salaries go to just the one course they taught, or should only some of it? Likewise, what if the president or vice president teaches a course? What are the decision rules for allocating supplies from the president's office to the course if

secretarial time is being used? Each of the institutions handled these matters, and some scholarships and fellowships, in different ways. In some instances, scholarships and training grant monies were added to the cost per credit hour; at other institutions, they were not. Because there were inadequate decision rules on how to allocate, the end units of cost among institutions would never be considered comparable.

In summary, the Virginia experience with IEP soured a large group of institutional administrators to the concept of planning and planning models and to their usefulness and utility.

"No amount of planning will ever replace dumb luck." A plaque with this admonition is said to have hung prominently in the office of Hale Champion, former financial vice president at Harvard University and later deputy secretary of HEW. This statement reflects to a considerable degree the measure of skepticism about planning models which I have encountered over the past five years in middle and upper management at two public, major research universities. A good number of higher education financial administrators feel less than comfortable with computer planning output and quantitative methodologies in general. I hasten to add, though, that there are university executives who find computer-based technology quite comfortable. One executive vice president of my acquaintance programmed his own electronic mail system and gave access to the network to fifteen of his colleagues. He even has a terminal in his home, which is linked to the campus computer. For him, computer-based management information systems and word processing capabilities seem almost indispensible. But I sense he, even now, three years hence, is still a rare bird in administrative academe.

My experiences have been that planning and decision models are mistrusted, and unused, because they are unfamiliar and non-incremental. Another aspect contributing to this considerable skepticism is that strategic, long-range planning requires reasonably accurate long-term forecasts. In the last decade, such forecasts are almost always impossible to produce.

The theme of this Conference is the "Uses of College and University Financial Assessment in Institutional Management and Public Policy Analysis," I have just said that computerized applications of financial assessment at public, major research universities are mistrusted and unused because they are unfamiliar, and inaccurate in the long range. Let me expand.

Unfamiliar

If there is any single characteristic which labels university management different from other enterprise management, it is the diversity and idiosyncracy in the management styles of university executives. Most university officers are drawn from the ranks of the faculty. Humanists, engineers, physicists, and biologists with a wide variety of administrative expertise run the universities today. The management styles of these executives range from very unstructured to very centralized. Regardless of background and training, most university executives rely more on a cadre of information interpreters, personal contacts who supply information for decision-making, than they do on computer-generated information. The universities I am familiar with are managed by a consensus of a large number of individuals. Many of these individuals have not been long in their positions. A rapid turnover rate (rapid by

corporate standards) is characteristic of university executives. Many have not been in their jobs long enough to become familiar with computer-based planning models.

Non-Incremental

There probably is not a major public university in the country which has not had a board of trustees or a state board of higher education direct that some planning methodology be put in place that will forecast the economic future of the institution. In spite of this mandate, I believe the truth is that line-item incremental budgeting is still the most commonly used and most widely accepted planning and budgeting technique. University executives are familiar and comfortable with this approach. They think in these terms. The global, strategic planning view is nice and often very stimulating; but planning and budgeting in simple, understandable increments is how it is being done.

Forecasting the Future

The litany of computer-based models maintains that institutions can enhance their ability to do long-range budget planning. Often it is said the great advantage of such models is that they draw attention to the underlying growth rates that may continually act to drive income and expense apart. In the past five years, a period no longer than most planners deal with, several major changes have affected almost all public institutions. These include two of the most severe recessions in modern times, shortages in supplies and materials, sharply rising costs for energy, a doubling of interest rates, record levels of inflation and high unemployment, abrupt shifts in student attitudes and major, and appropriation cutbacks and hiring freezes.

In hindsight, the onset of each of these changes appears to be somewhat obvious from events that proceeded it. Yet, there seems to be very little evidence that any one of them was forecast in anyone's long-range plan. The point is not that the planner must be the perfect seer, but rather that the future must be described with sufficient accuracy if management is to avoid making unalterable commitments that turn out to be in irreconcilable conflict with the future as it unfolds. Unfortunately, this modest level of accuracy appears to be beyond attainment when capital and renovation commitments are required, even as little as one year in advance.

There is a feeling among a great number of higher education administrators that, in a highly uncertain world, it may be better to design a computer-based control system that relies on prompt response to feedback than to try to preprogram events through detailed planning. Dan Updegrove's previous comments on using a planned model (EFPM) and a self-assessment manual (NACUBO's Financial Self-Assessment Workbook) may be the major computerized application of financial assessment technology for the next couple of years. These complementary techniques support comparative analysis of data from institutions which could produce insights useful in institutional planning and management. I look forward to these developments and hope they meet with more success than previous attempts with computer-based planning models.

WHO USES HEGIS DATA FOR WHAT PURPOSE?

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Is Higher Education General Information Survey a necessary and useful data base for determining the Condition of Higher Education and developing policy for this enterprise in relationship to national interests? In 1979 the National Center of Education Statistics commissioned a study to answer the following questions concerning HEGIS:

Who uses HEGIS data and for what purpose? How is the quality of HEGIS data perceived in terms of accuracy, timeliness, and characteristics of computer tapes and related documentation? To what extent are universe data and annual surveys required? What could be done to improve the usefulness of HEGIS data for analyzing and reporting on the Condition of Higher Education?

Methodology

In attempting to answer these questions, several different research methodologies were employed: 1) two distinctly different types of literature review; 2) more than seventy interviews of many different types of users and contributors to HEGIS; and 3) two different surveys of samples of two different populations of users.

Literature Review

First, a review of the literature of higher education and publications concerned with some aspect of the impact of higher education on American society was conducted. In this review, two quite different approaches were employed: 1) a conventional review was conducted to determine trends in use of the data, and 2) a statistical sample of the appropriate literature was drawn to determine the level of use.

Interviews

The review of the literature provided a written and statistical report on the uses of HEGIS in publications. In addition, it enabled the investigators 1) to identify some of the major users or potential major users of data--key scholars, contractors, education associations, government agencies, and foundations, and 2) to develop questions for the interviews and surveys.

Each interview required from one to two hours, for the interviewers attempted to learn not only how the interviewee had used HEGIS data but also what impressions or opinions he had about its quality and its use or potential use in the higher education enterprise.

Surveys

The reviews of the literature, suggestions of a Technical Advisory Panel, preliminary interviews, suggestions of NCES staff, and log of purchasers of HEGIS computer tapes and EDSTAT services provided the basis for identifying two different populations to be sampled and the design of two questionnaires. A statistical sample of states and institutions within those states was taken. This survey covered all of the research questions set forth earlier. A second sample was drawn from the log of purchasers of HEGIS data. The second survey, designed to be user specific, covered most of the questions set forth earlier, as well as technical questions about HEGIS tapes.

Conclusions

Despite the different methodologies and different populations that were sampled, there was major agreement on most issues concerning the uses of HEGIS data for analyzing and reporting on the Condition of Higher Education at all levels.

Most of the hypotheses developed during the review of literature and initial interviews, and subsequently tested through further interviews, surveys, and with audiences of users, were supported. The following includes a statement of these hypotheses and the degree to which the findings supported them:

1. HEGIS data have provided a foundation or base for the majority of reports and books that have affected public policy on higher education. Almost everyone that was interviewed agreed with this hypothesis while admitting to the principal investigator that it is difficult to show a direct cause and effect relationship. As noted more extensively in the body of the complete report, many factors and interests contribute to the development of public policy, not least of which is the lobbying of representatives of higher education. During the process of setting policy and making law, lobbyists and analysts at both the executive and legislative levels have to consider the interests of many constituencies and their conflicting priorities. However, it appears from a review of higher education as well as from other literature that ideas behind much policy and law generally precede the full development of policy and its conversion into law by several years. In higher education, for

example, the Carnegie Commission for the Study of Higher Education has produced extensive studies on higher education using HEGIS and other sources, such as the Census, to describe the condition of higher education and provide a foundation for policy recommendations. It seemed to this author and to many interviewees that a considerable amount of higher education law and policies in the seventies appeared to be derivatives of much of what was recommended by such foundations as Carnegie and the research sponsored by various federal and state agencies. Other evidence that HEGIS data provides a base for law is found in the extensive quotation of HEGIS data during Congressional Hearings on Higher Education and reports by interviewees. Most educational associations develop voluminous reports on the condition or projected condition of higher education for their own constituencies as well as appropriate staff of Congressional committees and executive agencies. In addition, the staff of associations and of Congress work closely together by telephone and memoranda with association staff supplying data or analyses. The data come from the associations' own research, the Bureaus of Census and Labor Statistics, and from HEGIS. (For an example of how associations work with Congress, see Roark, Oct., 1980, p. 3).

2. Enrollment and financial data are used much more extensively than other survey data for analyzing the Condition of Higher Education, for policy analysis, and for making decisions at state and local levels. This is probably true. (True is used here and elsewhere in the report in a relative sense.) However, Degrees and Other Awards Conferred data are used extensively in conjunction with enrollment data for manpower planning and evaluating affirmative action programs and persistence of students. Faculty and employee salary data is reported extensively as is tuition and fees because of the impact on personal and institutional decisions. These data are used to some degree in policy development.

3. Accuracy has improved. Generally the accuracy of all surveys except the financial survey is deemed acceptable. The financial survey file is probably used more than other files in making complex analyses of the condition of higher education. Moreover, there are many difficulties in reporting and interpreting financial data because of differences among institutions in government and accounting practices. Thus, reports of dissatisfaction with the relative accuracy of the HEGIS file were not expected. The major problems with the financial file are summarized in a report by Jim Hyatt and Nathan Dickmeyer, An Analysis of the Utility of HEGIS Financial Data, May 22-23, 1980.

It seems that many of the problems with the file would probably be corrected by more extensive documentation about the accounting practices and governance of certain institutions.

What was unexpected was the relatively high esteem that surveyees and interviewees had for the accuracy of most of the files. A recent study by NCES confirms the opinion of surveyees and interviewees about the relative accuracy of enrollment data. A 1979-80 NCES study reported that there was less than one percent difference between survey and audit data on enrollment. However, certain caveats are in order about the accuracy of the files. Some researchers are concerned about the levels of aggregation in the files on Enrollment and Degrees Awarded. Another respected researcher believes that the financial file is more accurate relative to the other files than perceived and that the concern about the file is a function of its extensive study and use as she believes expectations concerning accuracy increase with the use of data. It is also worth noting that one interviewee familiar with how library data has been collected or estimated in the past questioned the accuracy of this file. Library and facilities data have not been reported or collected for some time and, therefore, not used extensively, at least for complex analysis, in the last few years.

4. Timeliness of HEGIS data is seen as a major problem. This is the major problem with HEGIS. The delay of nearly a year or more, justified or not, between collection and distribution of data in machine processable form and hard copy publications is seriously affecting the use of HEGIS. Though there has been recent improvement in releasing tapes of certain files faster, there is still considerable dissatisfaction with the timing of releases. This dissatisfaction is reflected in findings from surveys and in the comments of researchers who work for both educational associations and institutions, charged with reporting to their constituencies and/or supplying data for making administrative and budget decisions. Students of higher education also voice the same complaint. The lack of timely data, as well as difficulties in accessing it in machine processable form (if one doesn't use it regularly), probably leads institutions and associations to do more collecting of data through their own surveys (formally or informally) that would be unnecessary if HEGIS data were released more quickly.

However, the expectations of some institutional researchers for delivery of data to support budget proposals, etc. can probably not be met. The primary purpose of HEGIS was and is to report on the condition of higher education at the national level, though such reporting necessarily requires analyses of various sectors of the enterprise. But, the data are also used for secondary purposes (for example, making comparisons among

institutions by institutions and state agencies). These uses have occured because the system provides for consistency in reporting on such matters as finances, degrees and enrollment for a universe of institutions. Generally, comparative data are wanted by state agencies and institutions for budget analyses. Since the budget cycle is almost continuous at the institutional level and budget development for the next year generally begins before actual data on the current year are collected by HEGIS, institutions find that they are required to use projections and revise them as actual data is collected. These revisions quite often are occurring as their reports to HEGIS go forward to intervening agencies, such as state boards, for edits and eventually forwarding to NCES for further edits. Thus, by the time NCES has the data for edit, institutions may have completed their budgeting process for the next year. The cycle and the process therefore appears to preclude NCES' ever delivering reports in time to support budget requests by institutions. Thus, what is going on will probably continue, and, in a sense, provides a use of HEGIS in an informal way--the trading back and forth of data among institutions which they have collected for their own management or for HEGIS long before such data does or could possibly appear in HEGIS reports.

This is not to excuse HEGIS from the requirement to report results of its surveys earlier. Currently, certain HEGIS data are reported in hard copy form as much as two years after the data were collected. Tapes and publications tend to be released as much as a year or longer after the data are collected. This is unacceptable. There was general consensus among interviewees that the data should be published in both machine processable and hard copy between six months and a year (even if this meant leaving out late reporting institutions, thereby sacrificing completeness and accuracy) after collection.

5. The uses of HEGIS data have increased significantly in recent years, particularly in the sophistication with which they are used.

6. HEGIS data have not been used as extensively as they might be in reporting on the condition of women and minorities in higher education because overhead or start-up costs in using HEGIS data for analysis is relatively high. Experienced users tend to disagree that start-up costs are high; but then they have already paid those costs. There has been a spurt of studies on ethnic groups and women in higher education in the last year, quite a bit of it being published and disseminated since the review strictly was in its final stages. Thus, the conclusion may not be tenable in the future.

7. HEGIS is a system that would have to be invented if it were not already in place because of the increasing need for data in policy making and planning. Everyone agreed with this notion.

8. More data are wanted on student characteristics and financial aid. Without question more information is wanted on the latter. There appears to be more disapproval than approval for HEGIS collecting data on student characteristics, institutional quality and outputs. However, there is more and more demand for such data from policy makers and consumers. Data are being gathered, and data bases are in place or being developed. Some interviewees suggested that NCES should act as a broker in gathering data from other Department of Education program offices, funding the collection and maintenance of data bases, and disseminating data.

9. The collection of HEGIS data has had an impact on the discipline and sophistication of data collection systems at institution and state levels. This seems to be a reasonable conclusion. It was generally agreed that this discipline has facilitated the exchange of information among institutions.

10. The collection of HEGIS data does not impose a heavy burden on institutions since most of the data would be collected by institutions and/or states for management purposes anyway. This conclusion seems reasonable although opponents of government regulation and data collection may argue with it. The interviewees did not see a heavy burden for ongoing systems. There is a distinct burden cost when changes are made in taxonomies, questionnaires (both of which can cause reprogramming) and/or in schedules.

11. Institutions are concerned about the uses of HEGIS for comparison purposes. This conclusion certainly holds for comparison of unit costs, resource allocation, and funding. Generally, institutions do not believe the data can be used for institution-to-institution comparisons because of timeliness, or lack thereof; lack of appropriate detail; differences in organization and accounting practices; and inappropriate comparisons of unlike institutions.

12. There was general agreement that data are required from all of higher education because of differences among institutions and the uses to which the data are put. Moreover, most compilers at the institutions felt that the burden of collection would be increased rather than lessened if a sample of institutions was taken because of the increased problems in planning for and managing the collection.

Other conclusions indicated by the findings are the following:

1. HEGIS data can be used for making comparisons among sectors of higher education. In fact, many would argue that it is accurate enough, when handled appropriately, for making state-to-state and inter-institutional comparisons.

2. HEGIS is not being used as fully as it might be for policy analysis, planning, and evaluation by either businesses or university scholars. As noted earlier, there is only a small coterie of scholars and students in universities that is using HEGIS for the above purposes. While there are strong indications that data are being used somewhat by businesses for planning recruitment and evaluating or negotiating affirmative action programs, these uses seem fairly unsophisticated. There is little information in the general literature on higher education about the contents of HEGIS and how to use it.

RECOMMENDATIONS

Several recommendations follow naturally from the above conclusions and are divided into two sections. The first group of recommendations are those, not necessarily in order of priority, which should obtain first attention of the National Center for Education Statistics. The second group, again not in order of importance, are those which should claim NCES attention after the first group. The recommendations are organized in terms of objectives, and each objective includes recommendations or suggestions for achieving the objectives.

First Priority Recommendations

Improving Timeliness of Dissemination. As noted in the conclusions and indicated in findings from the literature as well as from surveys and interviews, the major complaint with HEGIS is the timeliness and form in which the data is reported after collection. For example, a survey of the literature indicated that frequency of use generally parallels the collection and reporting of data. Moreover, and somewhat contrary to earlier expectations, the publication and distribution of the data in hard copy as well as on computer tapes is necessary since many researchers and governmental staff need to refer to published material for quick information. At the same time, machine processable data is required for complex analyses and full reporting on the condition of higher education by sectors.

Therefore, it is recommended that NCES do what is necessary to obtain the timely support of other government agencies, in particular the Government Printing Office, to expedite the publication of reports in hard copy while improving the timeliness

of access of machine processable data by tapes or EDSTAT terminals by speeding up editing, data processing, and reproduction cycles. It is recognized that improving timeliness to meet a target release of six months to no later than a year after data collection may require publication of data prior to the receipt of reports from certain institutions or states. Their absence and the reasons for such absences should be noted in the reports. At the same time, it would probably be useful to continue to input or estimate data for the missing institutions, so noting.

Insuring Completeness and Continuity of the Data Base. While a major priority must be given to early reporting of HEGIS data, even if this means publishing prior to receipt of reports from all institutions, provision should be made for including data from the tardy institutions as they are received in both hard copy publications as well as the machine processable data files. Thus, provision should be made to issue addenda in a timely fashion and revise the master data files. These addenda should be published, and the files should be revised in a timely and incremental manner.

Dissemination of Data. NCES should give increased attention to improving the dissemination of HEGIS data. As noted in the review of the literature, there is little information in the general literature of higher education about "how to use" and the availability of HEGIS data. Users of the data generally find out about its availability from NCES publications or from prior users. Several methods of improving dissemination should be considered by NCES:

1. Presidents of institutions and those in the institution who are charged with the collection and compiling of HEGIS surveys for their institutions should be provided special reports that show how an institution compares with its peers or in its region.

2. Not only presidents of institutions, but also those who actually complete the surveys, should receive complimentary copies of the HEGIS reports or, at the minimum, abstracts of such reports.

3. It would be helpful if known students of higher education received either abstracts or copies of HEGIS reports.

4. The feasibility of NCES licensing or otherwise supporting certain private or non-profit agencies to distribute HEGIS data files and/or to provide special reports from HEGIS data files should be investigated. Certain con-

tractors and non-profit institutions are currently acting as retailers of HEGIS data by performing special edits and/or reports for one or more institutions. However, the availability of these services does not appear to be widely known. NCES is now supporting several efforts, sometimes in conjunction with other agencies, such as the National Science Foundation, to upgrade the quality of HEGIS files, particularly historical files on finance and enrollment. These efforts should be catalogued, and the availability of these files should be widely disseminated so other users could obtain access to the upgraded files, either through NCES or the agencies at a reasonable cost.

5. The current practice of NCES in releasing the results of HEGIS surveys in bulletins and press releases should be extended.

Increasing Contract Support to Encourage Small Users of the Data. The findings suggest that the major impediments to the uses of HEGIS data are lack of timely release, lack of knowledge about the availability of the data except among a small coterie of users, and "start-up" costs for a new user of HEGIS computer tape files. Several recommendations have been made above for improving the timeliness of reports and the dissemination of reports.

However, there is still the problem of encouraging the use of the data for research and reporting on the Condition of Higher Education. The quality of the data in terms of timely reports by institutions, accuracy, and completeness (as well as complaints about its current quality) can be expected to improve with the use of the data. Thus the richness, accuracy, and completeness of the resource for analyzing the Condition of Higher Education to support useful and insightful policy and law would grow through use. For example, the value of the data has already been enhanced by NCES and foundation-supported studies that have highlighted the plight of certain sectors of higher education in terms of enrollment projections and financial resources. Other researchers have been encouraged to use the data to describe the status of disadvantaged or new clientele in higher education; for example, blacks, hispanics, and women. However, such contracts and grants have not generally provided support to a large body of researchers.

Therefore, it is recommended that more support be provided to students of higher education for using HEGIS data to examine conditions generally outside the primary interest of education associations. One model worth examining is the small grants

program of the National Science Foundation, which supports research using NSF data files to study higher education programs in science.

At the same time, NCES should attempt to obtain additional staff support for more in-house analysis of HEGIS data and using such data in conjunction with other files.

Collecting Financial Aid Data. Reports of previous studies for improving HEGIS data as well as the findings of this study indicate that NCES should give high priority to collecting and/or disseminating more data for evaluating the impact of financial aid programs and for developing policy in this area.

There are complex problems in defining what data are necessary and how data should be collected regarding the impact of financial aid programs on the resources of institutions, equality of opportunity, and choice for student. Much of the data may already be available in other offices of the Department of Education and in the Office of Civil Rights.

Prior to implementing a new collection effort, NCES should determine what data are available in these offices and what is necessary to include in HEGIS where it could be easily accessed for analyses. However, it is likely that all of the necessary data are not yet being collected by either government or private agencies. It may be necessary to collect data from students who do not receive financial aid as well as from those who do. In such a case, it would probably be useful to take statistical samples of the student body. This will represent a new practice for HEGIS and the institutions who compile HEGIS data since they now compile data through the institution from the universe of such populations as student, faculty, dollars, and space.

Continuation of Universe and Yearly Surveys. One of the problems of this study was to determine whether universe data should be collected and how often surveys should be made. All but three (facilities, libraries, and total employees) are made yearly. Both users and compilers of data for the surveys agreed that universe data was required, because of the diversity of institutions, and that regular surveys were necessary. Management of the data collection process is facilitated (and thus the burden is eased) when compilers can plan for the data collection on a regular basis. It appears that data that is collected yearly is required on a yearly basis and that the collection and publication of library and facility data should be done with more regularity and perhaps more often.

Therefore, it is recommended that 1) universe data continue to be collected; 2) that the data now collected yearly continue to be collected yearly; and 3) that the collection and dissemination of facility and library data be scheduled regularly.

Collection of Facility Data. It has been several years since facility data have been collected by HEGIS from the institutions. During this period, there have been many predictions that higher education has excess capacity in both facilities and faculty for projected enrollments. Given these predictions, it may be that investment in facilities has declined while facilities have aged, equipment has been made obsolete by newer technology, and needs have changed because of enrollment shifts by region, school, discipline, and other factors. But whether the above is true is not known since there has not been a recent survey of facilities.

Therefore, it is recommended that NCES conduct a facility survey in 1981 as planned. At the same time, NCES should begin a study to determine whether and how the current survey instrument should be revised for follow-on surveys to determine more fully the effects of deferred maintenance, technological obsolescence, and shifting needs on facilities. Unfortunately, most institutions of higher education, unlike private businesses, do not provide or account for depreciation and technological obsolescence. Thus, the design of an appropriate survey instrument will require considerable thought if the instrument is to collect data that will adequately describe the condition of higher education facilities in relationship to needs.

Second Priority Recommendations

Increasing the Scope of the Surveys. The literature, interviews, and conference reports on the utility of HEGIS data suggest that HEGIS should collect additional information for reporting on its condition. It has already been recommended that NCES provide leadership in compiling and disseminating data collected by the Department of Education program office and the Office of Civil Rights that is already being collected, particularly on the source and distribution of financial aid funds. Other additions or extensions of the surveys that should be considered are the following:

1. Faculty Salary Data. In addition, there appears to be a need for more detailed information on faculty salaries, at least at the institutional level. Several institutional planners reported that faculty salary data by discipline are used for making resource allocation and personnel decisions. However,

members of the Technical Advisory Panel questioned whether the data were needed for reporting on conditions at the national level. There was also some fear that the collection of such data would be difficult and might further delay the reporting of salary data.

However, institutions do make faculty decisions by discipline, and it can be projected that a good analysis of the status of women and minorities in higher education would require faculty salary data by discipline. It is probable that data by discipline is required only at fairly high levels of aggregation--for example, hard sciences, social sciences, and such professional schools as business administration, education, medicine, law, and engineering.

Since there are differences of opinion on how badly the data is needed and at what levels it should be collected, it is recommended that NCES conduct a special study of the need for these data and the impact that such a collection would have on improving the timely release of data that is now being collected.

2. Employee Data. The data currently being collected on employees in higher education for other than full-time faculty is relatively limited. For example, current surveys do not provide very much useful information on part-time faculty, graduate research and teaching assistants, research associates, and post-doctoral candidates involved in teaching and research. There are indications that the former mix of full-time faculty to other types of personnel for teaching and research is shifting. Additional data on personnel could provide information on whether there are significant shifts in the mix of personnel and higher employment opportunities for manpower planning. Therefore, it is recommended that NCES consider the feasibility of collecting additional data on employees.

3. Output and Quality. The review of the literature and interviews indicated that there is a growing demand for more information about the outputs, quality of higher education, and student characteristics. Certain associations and scholars, regularly or (more often) irregularly, collect data on output, quality, and student characteristics. Perhaps most notable among these reports are Dr. Astin's yearly study of freshmen, (CIRP)*, the NCES National Longitudinal Survey of the 1972 high school graduation class, and various profit and non-profit directories of higher education institutions. The latter often provide some data on student characteristics--in particular, admission requirements in terms of grades and test scores.

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*Cooperative Institutional Research Program

Although there are increasing concerns for measuring and reporting the quality and outputs of higher education and/or for particular institutions, there is wide divergence on what outputs and quality are and how they can be measured. Despite these problems of measurement, there is increasing anxiety about perceived decline in quality, the potential effects of competition for students on quality, and the lack of consumer information to aid students and their parents in selecting institutions. There also seems to be growing dissatisfaction with using student credit hours or other enrollment measures as the major measure for allocating resources.

Therefore, it is recommended that NCES support studies by outside agencies to determine whether the demand for the above data would justify the burden on institutions and/or government agencies that collection of such data would impose. Support should also be provided for research and development on measures of quality and output. It is also recommended that NCES should determine what is currently being done and reported by scholars and associations and how it might best support these efforts and act as a broker in disseminating the data widely for research and reporting on the Condition of Higher Education.

Recommendations of the Technical Advisory Panel

In its review of the preliminary draft of the final report, the Technical Advisory Panel noted that the report provided documentation that supported their perceptions that HEGIS was a necessary and increasingly more used data base for reporting and analyzing the Condition of Higher Education. It strongly supported recommendations for improving timely reporting and the means that were suggested for encouraging the uses of HEGIS data.

It recommended that the report be widely disseminated and that NCES and the higher education community support efforts to get the recommendations implemented at the earliest possible date.

It was also recommended that NCES commission a study to determine (1) the relative investment in collecting statistics on education, (2) the efficiency or effectiveness of current collection and dissemination efforts, and (3) what might be done to improve effectiveness.

AN ANALYSIS OF THE UTILITY OF HEGIS FINANCE DATA IN CONDUCTING INSTITUTIONAL AND HIGHER EDUCATION SECTOR COMPARISONS

James A. Hyatt
Associate Director, Financial Management Center
National Association of College and University Business Officers

Purpose of the Joint Study Group

On May 22 and 23, 1980, a joint study group of institutional, state, and federal higher education representatives was convened in Washington, D.C. to identify issues concerning the utility of HEGIS finance data for institutional and higher education sector comparisons. Areas of principal concern related to the consistency and comparability of the data collected. The principal objectives of the study group were:

1. to review the current uses of HEGIS finance data,
2. to examine problem areas related to the utility of HEGIS finance data, and
3. to outline recommendations for improving the utility of HEGIS finance data.

Potential Users and Uses of HEGIS Finance Data

Potential users of HEGIS finance data identified by the study group were:

- Federal policy analysts: HEGIS data, for example, have been used to examine the effect of federal policies on institutions.
- Regional associations: The Southern Regional Education Board (SREB) has used HEGIS finance data to examine revenue and expenditure trends for its member institutions.
- State higher education groups or systems: Iowa has made data available yearly for both public and independent institutions. These data are used by institutions for comparison purposes.
- Institutions: HEGIS data are used to compare institutional performance with national trends.

Potential uses of HEGIS finance data identified by the study group included:

- Issue-oriented policy analyses: HEGIS data can be used to examine the impact of institutional aid on institutions.
- Planning: to examine revenue and expenditure patterns over time.
- Budgeting: to provide an overview of higher education expenditure and revenue patterns at the state and national level.

- o Identifying peers: to identify groups of institutions with similar programs, student markets, and/or resource patterns.
- o Diagnosis: to examine specific strengths and weakneses in institutional financial condition. HEGIS data can also be used in the development of financial indicators of institutional performance.

Problems Related to the Collection and Dissemination of HEGIS Finance Data

Based on the uses of HEGIS finance data outlined above, the study group identified the following problem areas:

- o Response Rate: A consistent response rate over time is important in using HEGIS finance data for longitudinal studies.

- o Employee Benefits: State payments for employee benefits do not always flow through institutional accounts and, therefore, may not be reported on the HEGIS form.

- o Diversity of Appropriation Structures: Institutions may receive state and federal funds through a variety of appropriation structures, e.g., state funds for public health labs and indigent care. If only total institutional expenditures are compared, this can lead to inappropriate comparisons.

- o Diversity of Organizational Structures: Differences in the way that data are reported for medical schools, central administration, or operation of extension and research institutes should be considered when conducting comparisons. In 22 states, for example, the health professional programs are part of an overall institution health finance and enrollments are not separable.

- o Universe Encompassed by the HEGIS Finance Survey: Approximately 3,170 institutions are included in the HEGIS universe. The composition of the HEGIS universe, however, can change from year to year. An example is the variation in state reporting on the postsecondary component of vocational and technical institutions.

- o Institutional Classification Structure Used by HEGIS: The study group indicated that the classification structure used by HEGIS must appropriately differentiate between various types of institutions. This is particularly important in conducting appropriate comparisons of like institutions.

- o Student Aid Support: There is concern that student aid support reported in HEGIS may be understated by the amount of support going directly to students.

- **Debt Management and Service:** Variance in the way debt service is included in HEGIS reports can seriously hamper institutional comparisons. For example, in some states it is handled through a separate state agency, while in other states it is handled by the institution.

- **Reporting Practices:** Despite efforts to improve reporting practices, the way in which data are reported can vary from institution to institution and from year to year.

- **Chargebacks:** In those instances in which a large university system provides service to other campuses, the finances for the campus providing the service will be overstated unless some form of chargeback is used.

- **Imputation and Estimation of Institutional Data:** Data are often imputed or estimated for institutions that fail to respond to the HEGIS finance survey. The study group suggested that it would be helpful if details of this imputation process were made explicit.

Recommendations of the HEGIS Study Group

In an effort to improve the utility of HEGIS finance data for institutional and higher education sector comparisons, the study group formulated the following recommendations:

1. Increased participation by institutional representatives in the indentification of data collection problems. Higher education organizations should work with their members to improve the quality and utility of the data collected.

2. Increased use of NCES regional workshops to answer questions concerning HEGIS and to solicit institutional feedback on HEGIS forms and procedures.

3. The study group differed over ways in which HEGIS finance data should be used. They were supportive, however, of NCES' past efforts to facilitate the data collection process.

4. Periodic review and revision of HEGIS survey instruments, with particular attention to the definitions contained in the HEGIS forms. A technical advisory group of institutional, state, and national representatives should also be formed to assist NCES in the revision process.

5. Provision of feedback to participating institutions through the use of institutional profiles. These profiles could be constructed by NCES using data submitted by institutions. The National Science Foundation currently uses this approach and has found it beneficial.

6. NCES needs to document a procedure for correcting errors in prior-year data tapes. These procedures would help to preserve the integrity of the data.

7. Use of state higher education agencies to facilitate the collection of HEGIS finance data. These organizations should be encouraged to strengthen their editing activities. It should be noted that the SHEEO/NCES network currently provides feedback to NCES on survey forms and procedures.

8. Improve the continuity of NCES data processing procedures by implementing a standard format for all data tapes, across both surveys and years, and by more closely monitoring the production of data tapes.

9. Establishment of a fixed and regular schedule for the release of HEGIS finance data.

10. Provision of HEGIS finance data users' manual to aid users in understanding how HEGIS finance data are collected, processed, and disseminated.

11. Creation of a longitudinal HEGIS finance data tape. This tape would be updated periodically to incorporate any corrections in the data and would ensure data consistency.

12. Improve communication with data providers and users by working more closely with institutional and state higher education associations.

13. Establishment of a data users group to exchange information on the uses of HEGIS finance data.

Publication of Proceedings of the Joint Study Group

A report, entitled "An Analysis of the Utility of Hegis Finance Data in Conducting Institutional and Higher Education Sector Comparisons: Proceedings of the Joint Study Group on the Utility of HEGIS Finance Data," has recently been published by NACUBO. This report describes in detail the concerns and recommendations of the study group. The report also contains four issue papers, which highlight the experiences of higher education institutions, state coordinating boards, and research organizations in using HEGIS finance data.

PROBLEMS IN PROVIDING A NATIONAL FINANCIAL DATA BASE FOR USE IN MANAGEMENT AND ANALYSIS DECISIONS

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In 1966, HEGIS was born. HEGIS, an acronym for the Higher Education General Information Survey, was not a survey; it was several surveys. Among the component survey areas were enrollments, degrees awarded, financial statistics, institutional characteristics, and employees. Its purpose was to collect a variety of general information on colleges and universities.

HEGIS was developed to satisfy Federal data needs and in particular, " . . . to collect and disseminate statistics and other data . . . on the conditions of education in the United States," the mandate of the National Center for Education Statistics.

As the years rolled by, HEGIS gathered momentum. It began to collect data for other Federal agencies. Often these other agencies were able to discontinue their own higher education surveys, much to the relief of over-burdened college officials. In addition, the education departments of several states as well as some professional and education associations began to rely upon HEGIS as a data collection vehicle.

As HEGIS' viability and visability increased, more and more researchers began to use HEGIS data. As a centralized nation-wide survey (or group of surveys), it offered several advantages:

1. It was a universe, not a sample, survey. It collected data for public and private institutions, universities , other 4-year colleges and 2-year colleges. It covered all 50 States, the District of Columbia, and U.S. possessions.

2. The survey populations of the enrollment, finance, and faculty surveys were nearly identical in coverage, thus allowing cross-field or second level analyses.

3. The core of HEGIS was basically repeated year after year, thus permitting trend analyses.

4. HEGIS frequently benefitted from the support of professional and education associations. It (HEGIS) was modestly praised by the President's Commission on Federal Paperwork. And most importantly, college and university officials took the time and aggravation to participate in the surveys, giving most HEGIS surveys better than 90-percent response--pretty good for voluntary surveys!

5. The data provided by HEGIS were cost-efficient. The tapes could be purchased for about $100.00 and the publications were free. (The price was right!)

As the Seventies began to wane, most of us in higher education saw distressing omens of bad times ahead. We could see that the number of high school graduates would drop; we read about schools being forced to close their doors. Costs for utilities, supplies, and nearly everything else were skyrocketing and sources of revenues were limited.

Institutional managers and public policy analysts looked to researchers for specific information about higher education's current situation and its future. They wanted to make decisions based on facts, not fears. And they turned to the HEGIS survey of college and university finances.

With the increased usage of HEGIS finance data, researchers and other data users began to see problems with the data base. Some of these problems included:

1. The available data appeared to be two or three years old.

2. Data for individual institutions often had errors or omissions.

3. The survey form changed in FY 1975 to conform with national standards for reporting finances and longitudinal studies required complex cross-walks.

4. Fund accounting--the kind most colleges use--was ambiguous. The HEGIS finance categories were often frustratingly broad. John Minter assessed the accuracy of HEGIS finance data and found them wanting. And many would-be data users were discouraged.

Despite these shortcomings, HEGIS still had the advantages mentioned before and HEGIS continued to be studied. Probably, most of us in the room today have looked at HEGIS data at one time or another. And instead of despair, you offered constructive criticism. You told us, "HEGIS has got to improve; its got the potential to be a valuable resource."

So NCES stepped up its efforts to improve the accuracy, timeliness, comparability, and reliability of the finance survey. What did we do?

1. We reorganized NCES to divest the HEGIS staff from the responsibilities of handling requests for information and preparing analyses. Our assignment was to speed up the turnaround time by releasing the computer tapes with clean data bases as soon as possible.

2. We produced "Early Releases" within six months of the survey's due date which gave clues as to significant national trends in higher education finance. (We did this in other survey areas as well.)

3. We developed editing and processing specifications for our data editors.

4. We issued the Higher Education Finance Manual, 1975 to help respondents provide more accurate data.

5. We developed our relations with our state coordinators. Now there are 44 states who actively help us with HEGIS collections. Many of them even edit the data for us and call the schools in their states if they spot unusual data.

6. We supported NACUBO's efforts to assess the utility and limitations of the HEGIS finance data. NACUBO and SHEEO, working independently, pinpointed several comparability problems with which responsible data users should be cognizant.

7. We commissioned a series of validation studies. The current contract is with Arthur Young and Company to validate the accuracy of the HEGIS finance and faculty surveys. This validation study will tell us how accurate our data are and where the data are weakest. We will learn how to improve our instructions and definitions to reduce reporting problems. We will modify any current editing procedures which are determined to be counter-productive to improving the data base.

8. We've begun to hold regional workshops with state and institutional representatives to discuss our postsecondary education data collection plans in general and about HEGIS reporting in particular.

9. We sponsored the VPI study of uses of HEGIS data. The final reports will be out in a few months. Dr. Andrew has discussed many of the uses of HEGIS data. Other major uses of the finance data include: (a) Higher Education Financing in the Fifty States by Marilyn McCoy and D. Kent Halstead; (b) the ACE/NACUBO Financial Conditions Project; (c) the NCES/ACE/AACJC/NACUBO study of Comparative Costs at Community Colleges; (d) the Condition of Education report by NCES; (e) the Bureau of the Census; and (f) the Title III (Aid to Developing Institutions) program administrators. People are using these data!

10. We are investigating state-of-the-art data processing software packages that will give us greater flexibility in updating current and past data files. We would like to provide cross-file and trend data to our respondents for two reasons: first, to spotlight potential reporting problems and secondly, to give institutions data that they can use.

That's the good news. The bad news is that NCES has lost about 25 percent of its staff, that Congress has cut our budget, that GPO still takes from one-and-a-half to seven months to print our publications, that our clearance procedures (which are designed to prevent unneccessary or duplicative Federal data collection efforts and to reduce respondent burden) are tougher and add to delays in mailing HEGIS forms to the schools, and etcetera and ad nauseum.

But the worst problem all of is bad reporting. Although it has been improving recently, we still get finance survey forms with omissions and errors--an average of six errors per form. And there are 3,200 forms. In addition, the responses are late. The due date is October 31, just a week away, and currently we have received about 500 forms. We will still be receiving FY 1980 finance forms in June of 1981. I can't clean up the responses, inpute for nonresponses, and provide a tape much before November if I don't get the responses until May or June.

To briefly sum all of this, HEGIS has new and more difficult demands on it in 1980 than it had in 1966. And the need for decent management information for this $50 billion-a-year industry has never been greater. We've solved major problems but we still have lots of room for improvement. I thank you all--the associations, the institutions, the states, the researchers, and the critics--for your support in the past and I look forward to working with you in the future.

A STUDY ON THE FINANCIAL CONDITION OF THE STATE OF WASHINGTON'S INDEPENDENT HIGHER EDUCATION

A Preliminary Analysis

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Peat, Marwick, Mitchell and Co.

INTRODUCTION

The material for this paper is based on the preliminary results of a study prepared by Peat, Marwick, Mitchell & Co. (PMM&Co.) for the State of Washington Council for Postsecondary Education. The study is being prepared as a result of a request by the State, through a House Higher Education Committee Resolution for an accurate assessment of the current and projected revenues and financial condition of Washington State's independent four-year colleges and universities. The material contained in the PMM&Co. study will be used as background material for a comprehensive report being prepared by the Council for presentation to the House Higher Education Committee.

The material contained in the Council's report will be used as background for further analysis regarding the public policy issues involving the independent higher education sector in Washington State.

The preliminary analysis from the PMM&Co. study indicates that public policy actions can have significant impact on the State's independent higher education sector. The public policy areas of most significance are enrollment, student financial aid, and anti-inflation measures.

The remaining portion of this paper describes how the PMM&Co. study was developed and how the independent higher education sector can be affected by public policy actions.

The financial data used in the study have been provided by John Minter Associates. The approach for the study has been adopted from the work of the American Council on Education (ACE) and the National Association of Colleges and University Business Officers (NACUBO). The two associations collaborated to publish Financial Self-Assessment: A Workbook for Colleges. The workbook describes assessment of the financial condition of the independent institutions. The basic concepts and approach were used for the State of Washington study.

In order to assess an institution's financial condition and evaluate its relative risk, information needs to be gathered which includes non-financial as well as financial data. The data used in the study are grouped in the following categories:

- Environmental
- Institutional
  - Financial resources
  - Flexibility
  - Non-financial resources
  - Changes affecting financial resources

Based on the research conducted by ACE and NACUBO, a small number of core statistics have been developed which serve as indicators for each of the above categories. The purpose of the indicators is to assess the relative strengths and weaknesses with the use of readily available and easily accessible information. One advantage of using a limited number of statistics is the relative ease in interpreting the data and communicating the results. Also, the core statistics are very useful in identifying areas requiring further analysis. However, the use of only a few statistics also has its limitations; these are described later in this section.

The core statistics used in the Washington State study are shown on the following page.

I - APPROACH TO THE STUDY

The study has been developed based on data of 10 institutions. These institutions are:

- Fort Wright College
- Gonzaga University
- Pacific Lutheran University
- Saint Martin's College
- Seattle Pacific University
- Seattle University
- University of Puget Sound
- Walla Walla College
- Whitman College
- Whitworth College

The purpose of the study is to assess the overall financial condition of the independent higher education sector in the State of Washington.

The study is based on the concept that an institution's financial condition is dependent on two factors: the environment in which it exists and the institution's basic financial structure. These two factors are closely related. Changes in the environment, such as enrollment trends and retention factors can affect the institution's financial stability and organizational structure. In addition, changes in the college's financial structure, such as due to increased academic emphasis, can affect the environment and cause a change in student demand.

Coupled with the concept of financial condition is the concept of financial risk. The ease with which an institution's financial stability is affected by its environment is referred to as its relative financial risk. The more susceptible an institution is to the negative effects of the environment, the greater is its financial risk.

STATE OF WASHINGTON

A Study of the Financial Condition
of the Independent Higher Education Sector

Statistics Used in the Study

Environmental

• Enrollment	Fall Term FTE's 1976 through 1979
• Retention Rates	Returning students each fall term, 1976 through 1979

Institutional

• Financial Resources	Unrestricted Current Funds Ratio Endowment Funds Ratio
• Flexibility	Acceptance Ratio
• Non-financial Resources	Instruction Ratio Instruction Expenditures per Student FTE Student/Faculty Ratio
• Changes Affecting Financial Resources	Tuition and Fee Rate Tuition Discount Ratio

Methodology

Each of the statistics were calculated for the ten institutions in the study. The financial data were acquired from John Minter Associates and supplemented with enrollment, faculty, retention, application, and acceptance data.

The statistics were then analyzed, and a profile developed based on the trends for the indicators. After the individual profiles were compiled, an assessment of the general conditions was developed. The overall summary concentrated on the median values of each of the statistics as well as general trends that might be evident. For example, in many cases seven or eight of the institutions have trends for a specific statistic moving in the same direction. In those instances, it is concluded that the independent sector as a whole has the same characteristics or tendency as the majority of the institutions in the group.

Limitation

A study of this nature has limitations. A major limitation is due to the possible misunderstanding of the purpose of such a study. The analysis is not a comprehensive diagnostic evaluation of the State of Washington's independent higher education sector financial strengths and weaknesses. For example, no interviews or surveys of institutional officers were conducted and neither were there any examinations made of institutional records and policies. These additional tasks were far beyond the scope and cost considerations of an indicators study of this nature.

Another limitation of the study is possible misinterpretation of the data. For example, an institution with increasing Instruction Costs per Student FTE may be suffering from the effects of inflation or it may be consciously improving its academec program by allocating increased resources to that area. Only through additional investigative effort can thorough assessment be made. The analysis and observations made in this report should be used as a basis for discussion among the institutions. Such discussion may lead to improved strategies and possibly improved financial condition.

Finally, the study does not, and cannot, measure the quality of the college or university management and the condition of the morale on campus. The data used in this analysis result from the efforts of administrators, faculty, and students. It is impossible to assign a value to the dedication and commitment these individuals show in sustaining the academic and financial viability of these private sector higher education institutions.

II - DESCRIPTION OF THE FINANCIAL STATUS OF INDEPENDENT HIGHER EDUCATION INSTITUTIONS IN WASHINGTON

This section of the study describes a composite overview of the financial status of Washington's 10 independent colleges and universities. Enrollment trends are first examined followed by an analysis of retention rates. These two factors set the stage for a general assessment of Washington's independent higher education sector.

Enrollment

The enrollment trends for the Washington independent higher education sector have shown modest and steady increases over the period 1975-1979. Fall Term FTE's are shown for each of the institutions in Exhibit II-A. Enrollments grew from 19,952 FTE fall 1975 to 22,043 in Fall 1979 - a 10.5% increase. Seven of the ten institutions experienced steady or rising enrollment patterns during this period.

Projections made for future population growth in the State of Washington indicates that the independent higher education sector will have a reasonable chance of sustaining their enrollment levels. One of the more recent studies conducted by the Washington State Research Council is the Agenda for the Eighties: The Forces Shaping Washington's Future, State Growth and Economy. This report shows Washington being one of the "magnet" states (Exhibit II-B) with increasing population levels. These increases will be due to an influx of both young professionals and retirees.

Exhibit II-C shows three separate projections for Washington's population through 1990; the estimated increases range from 17 to 25 percent in the period from 1980 to 1990.

The public sector policy relative to public enrollment levels will be of major importance to Washington's independent higher education sector; the public sector enrollment policy has a direct impact on the enrollment levels of the private sector. If the public sector maintains a policy aimed at sustaining its proportionate share of higher education enrollments, the independent institutions will be in a position of sustaining their own enrollment levels.

Retention

An independent institution's ability to retain students through their four-year undergraduate experience is a valuable resource. If an institution has a high retention rate, one can conclude that it is optimizing costs for admissions, its enrollment patterns are steady, it has a balance of students across class levels, and a sense of stability is reflected in the academic program. The retention rates for the institutions in the study have been used as one of the key factors in assessing financial stability.

Exhibit II-D shows the median retention values for the institutions in the study. It shows a median value of approximately 70 percent of the first-year students returning for the second year, approximately 50 percent enrolling for the third year, and finally, 42.9 percent returning for the fourth year. The limited number of years of retention data precludes the development of trends.

Because retention rates are important, it is recommended that the data continue to be compiled and distributed among the institutions included in the study.

The variation in retention rates among the institutions is startling. The highest retention rates were:

70.1% - 73.9 % returning the second year;
57.4% - 57.6% returning the third year; and
55.1% returning the fourth year.

The lowest retention rates were:

40.0% - 57.6% returning the second year;
27.0% - 30.5% returning the third year; and
20.0% returning the fourth year.

The institution with the highest retention rates has values for the other indicators which suggest a stable operating environment and a relatively solid financial condition. On the other hand, the institution with the lowest retention rates has other indicator values that suggest a fluctuating operating condition and a weak financial condition. In fact, it has announced its planned dissolution.

Retention rates are not collected systematically, so that it is difficult to compare them for similar institutions in other regions. However, cross comparisons are not as important for the analysis of retention as is the examination of trends for each institution. As state above, data for additional years are required in order to adequately assess trends in the retention rate.

Federal Student Financial Aid

A major issue affecting Washington's independent institutions is the Federal government policies regarding student financial aid. Through the campus-based aid programs (National Direct Student Loan, Supplementary Educational Opportunity Grants, College Work Study) and the student-based aid programs (Basic Educational Opportunity Grants, Federally Insured Student Loans), the Federal government is a significant financier of higher education. The State of Washington's independent institutions received $8.1 million in campus-based aid in FY 80. In addition, Basic Grants totalled $2.7 million and the FISL program loaned $3.7 million. The recent events in Congress surrounding the approval of the Education Amendments of 1980 are evidence of the politically sensitive nature of these programs. Because Federally supported aid programs do have such a material impact on the financial viability of the independent sector throughout the country, any observations regarding an institution's financial condition needs to be qualified with the assumption that the federal aid program will continue being a positive influence on the independent sector.

General Observations

Based on the analyses of the institutions' statistical data, the Washington independent colleges and universities are, in general, financially viable organizations. They are undergoing significant financial pressures but evidence exists that the financial strength of the institutions is being sustained.

The institutions have, in general, experienced stable or slightly increasing enrollments. This stable enrollment base is an important factor for the financial success of an independent educational institution. The current economic, political, societal, and demographic trends would tend to support the assumption of continuing stable enrollment patterns. Material changes in public sector educational policies would be the only other major factor that would impact the enrollment trends of the independent sector.

Closely related to the enrollment pattern is the retention factor. In general, the institutions are maintaining acceptable retention rates. Those institutions that are not, are experiencing fluctuating enrollments and some financial difficulties.

With one exception, the independent institutions in Washington do not have significantly large endowment levels relative to their operating budgets. In general, the independent colleges and universities' financial reserves are limited. This limited-capital position does not give the institutions much of a cushion against adverse economic and other environmental factors. In spite of the limited financial base, most of the institutions have been able to sustain the purchasing power of their financial resources.

The Non-financial Resource Indicators show that most of the institutions are having to allocate an increasing share of their resources to non-instruction program areas. Over the four-year program the median value of the Instruction Ratio declined; at the same time the Instruction Expenditure per Student FTE has been maintained at the rate of inflation. This is an important factor, because erosion of the purchasing power of instruction on a per-student basis can have significant impact on the academic program. The final Non-financial Resource Indicator, the Student/Faculty Ratio, has been relatively stable at approximately 15:1 for the median value. The consistency of the Student/Faculty Ratio suggests institutional management's ability to adjust faculty levels to respond to student enrollment fluctuations.

The last area examined, Changes Affecting Financial Resources, indicates that in general, the institutions are sustaining their tuition and fee rates to offset inflation. Since tuition revenues are the major revenue souce, it is important to the financial well-being of the institution that they be maintained at least at the rate of inflation. Except for a couple of institutions, the group is not using significant unrestricted resources for scholarships.

In summary, the preliminary results of this study seem to indicate that the independent higher education sector in Washington is sustaining its financial condition. It continues to provide educational opportunities to a significant portion of the State's residents and should be regarded as a valuable state resource.

STATE OF WASHINGTON

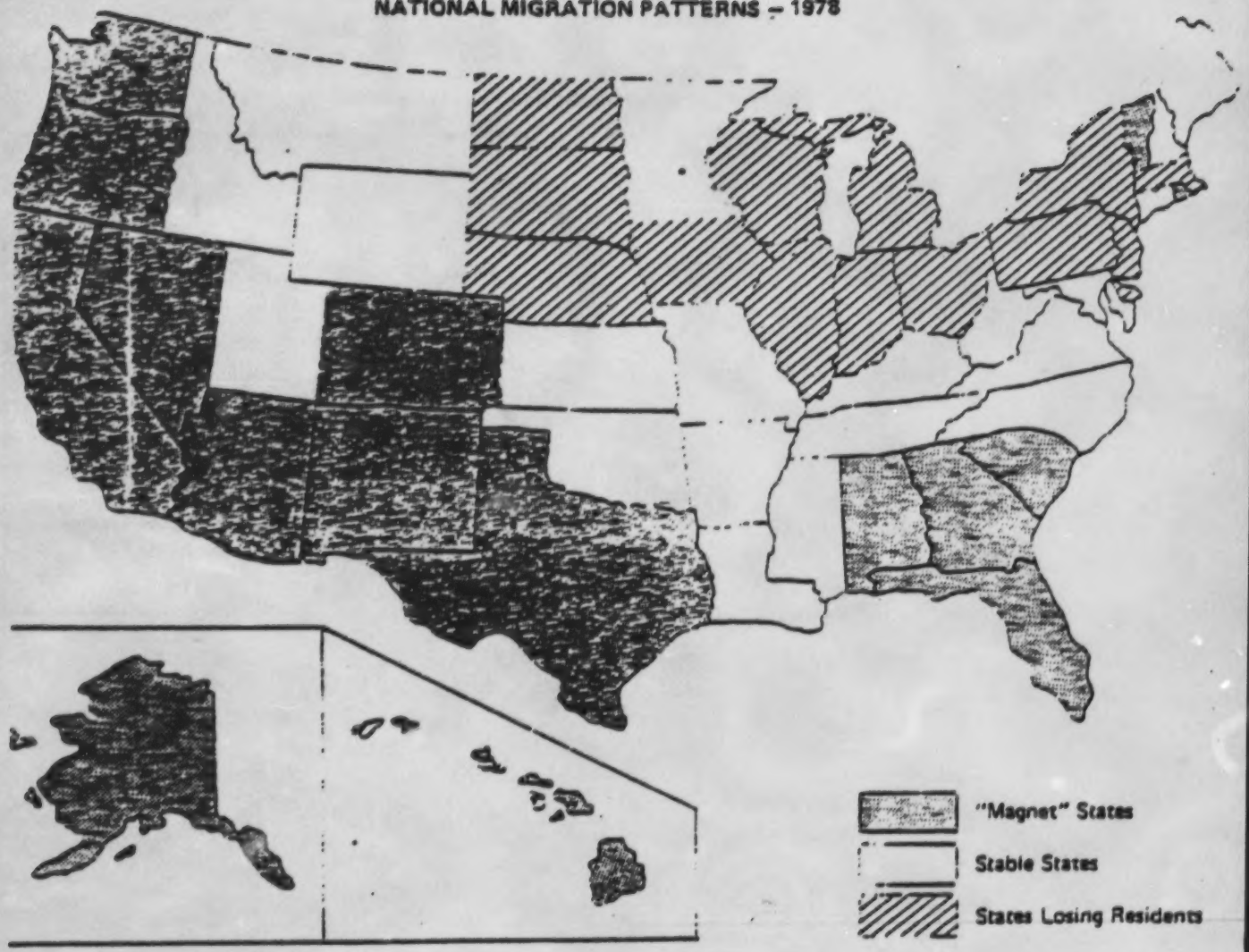
Independent Colleges and Universities
Enrollment Patterns

Fall Term FTEs

	1975	1976	1977	1978	1979
Fort Wright College	336	289.67	316.43	292.73	336.62
Gonzaga University	2,846	3,141.24	3,313.80	3,595.85	3,441.93
Pacific Lutheran University	2,816	2,720.26	2,715.07	2,785.53	2,765.49
Saint Martin's College	488	466.26	441.27	466.27	492.46
Seattle Pacific University	2,133	2,149.00	2,052.01	2,075.18	2,870.65
Seattle University	2,882	2,809.98	2,944.24	3,127.62	3,239.63
University of Puget Sound	3,881	3,919.84	3,906.91	3,754.61	3,707.27
Walla Walla College	1,839	1,834.54	1,717.96	1,716.06	1,873.46
Whitman College	1,196	1,209.93	1,201.53	1,250.00	1,218.27
Whitworth College	1,535	1,420.30	1,355.33	1,351.26	1,332.69
Total	19,952	20,562.69	20,622.21	21,101.45	22,042.60
Percent increase over prior year		3.1%	.3%	2.3%	4.5%

Source: Annual Enrollment Report, Washington Friends of Higher Education
Seattle, Washington

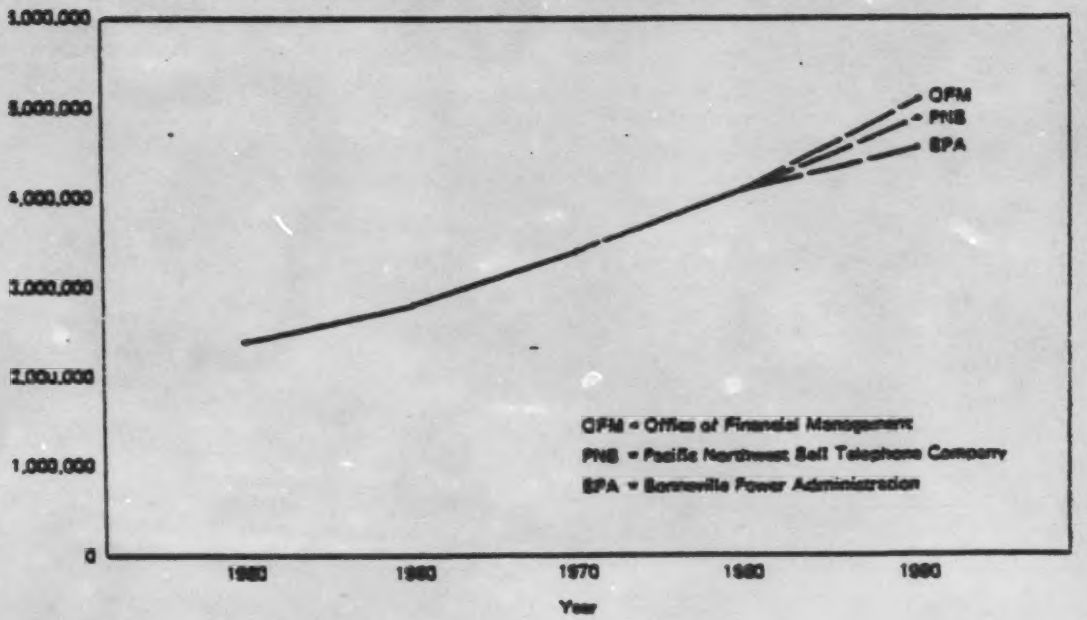
NATIONAL MIGRATION PATTERNS – 1978



Source: Allied Van Lines, Inc. (based on company shipments

EXHIBIT II-C

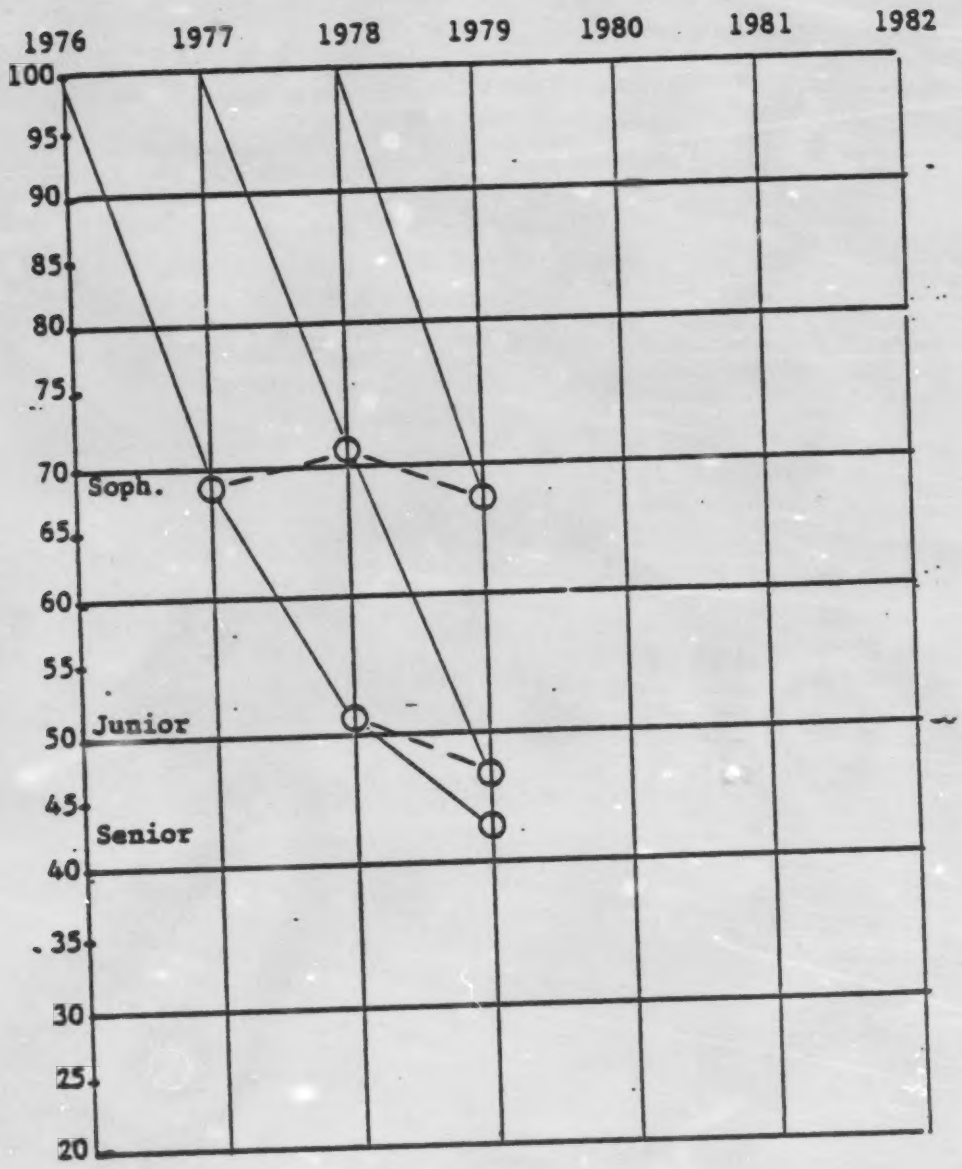
WASHINGTON STATE POPULATION: THREE PROJECTIONS THROUGH 1990



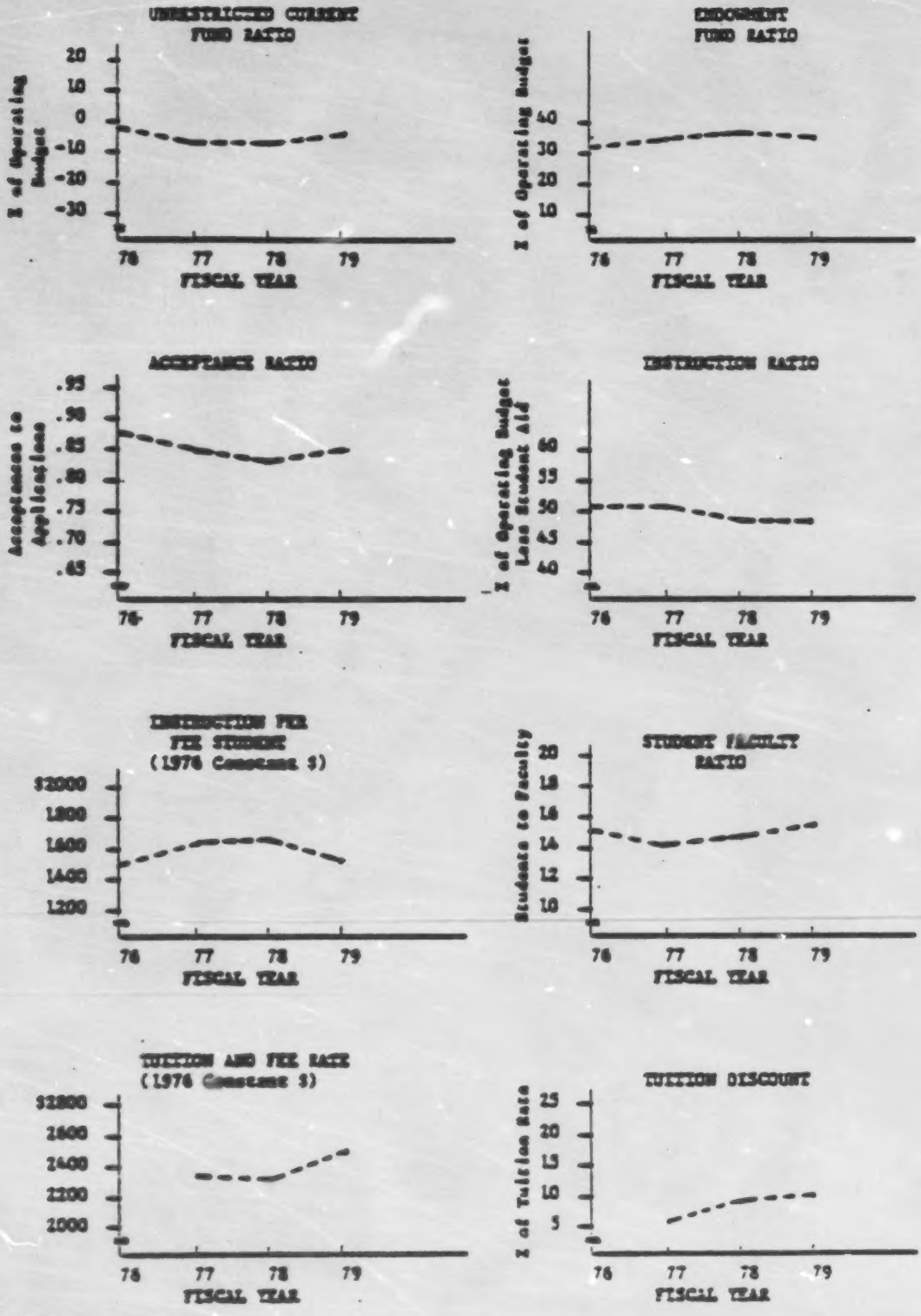
1980 estimate based on OFM projection.

RETENTION RATES

MEDIAN VALUES



FINANCIAL CONDITION INDICATORS
MEDIAN VALUE



——— institutional data

- - - - - - median value for institutions in study

BALANCING RISKS AND RESOURCES: FINANCIAL STRATEGIES FOR COLLEGES AND UNIVERSITIES

Nathan Dickmeyer
Director, Financial Conditions Project
American Council on Education

ABSTRACT

One of the difficulties facing higher education administrators is the integration of financial management with strategic planning. A framework for financial strategies is developed in this paper which recognizes the necessary balance between institutional risks and resources. Institutions isolate core programs from risk by using several types of buffering systems. Financial strategies result from the active study of institutional academic and marketing strategies, the monitoring of core activities, risks and resources, and the assessment of the trade-off between the need to build buffers and the need to invest in expanding or maintaining core activities.

INTRODUCTION

To those familiar with industrial finance, risk is well understood in terms of the dependence of sales on economic cycles and the use of debt in financing. Corporate financial strategies are generally predicated on a balance between financial risk and corporate resources in terms of technical expertise, market dominance and patent protection. For that reason the utilities industry, for example, balances the high risk exposure of heavy debt financing with the low risk of their monopolized sales markets.

In the nonprofit sector the concept of risk for use in developing financial strategies is poorly understood. An explicit acknowledgement of risk is rarely presented in the strategies of nonprofit institutions. In the higher education sector, financial strategies themselves are rarely made explicit. Tactics like investment policies or tuition increases are well discussed and often carefully researched, but rarely does an institution build strategic options and styles within a conceptual framework which acknowledges changing levels of risk.

Some evidence of this lack of integration between financial management and strategic planning can be found in the limited role of college and university controllers. In a survey of 291 university controllers, Giacomino

(1 80:34) found that university chief financial accounting officers were rarely involved in planning.

> The controller's role in higher education institutions appears strongly oriented toward control with little participation in planning.
> Data related to experience, education and certification indicate that university controllers possess a reasonably high degree of ability in financial accounting. Given their abilities and limited involvement in planning and decision making, university controllers appear to be under-used.

Without denigrating the central importance of the control function, the following paragraphs are intended to lay a basis for the participation of chief accounting and financial officers in the planning process. The purpose of their participation in planning is to help integrate financial strategies with academic and marketing strategies, and the intent of this paper is to assist financial officers in articulating financial strategies in those discussions which recognize the need for financial resources as buffers against the risk of detrimental financial fluctuations.

Financial officers, even those with the proper skills, are under-used in planning because the connection between financial management and planning has not been made clear. That is, strategic options have not been defined, and a thorough analysis of important variables like risk and institutional resources has not been undertaken.

DEFINITIONS

Financial Management

Financial management includes the making of decisions and policies which govern collecting of revenues, setting of fees, allocating revenues, investing resources, and controlling cash flow. Viewed separately, each of these decision areas requires either optimization or the application of institutional values and priorities. Tuition can be set at a level which maximizes revenues; revenues can be allocated according to the value systems of the allocators (with the usual bargaining and trading inevitable in allocations of scarce resources).

The decisions in each of the financial management areas are <u>not</u> independent, however. Revenue and investment decisions affect the total volume and steadiness

of financial inflows. A decision in one area, like the setting of tuition rates, can affect the volume of funds available in other decision areas. like allocations to instruction, and can affect the timing and predictability of that volume.

Some decisions are riskier, but offer higher potential returns. Investing endowment funds in stocks rather than bonds, more liberal tenure policies, and student recruitment policies which expand the targeted area can all offer greater returns along with greater risks. The role of financial management is to report risk and resource trends and to assist in developing institutional strategies to fulfill goals.

Strategic Planning

Strategic plans provide the context for the sets of decisions which bring the institution closer to fulfilling long range goals. The strategies implied in the term, strategic planning, refer to conscious attempts to redefine or to "move" the institution. In fulfillment of goals, these strategies can aim at the development of new clients, new programs, or new budget priorities. Likewise, financial strategies must answer questions about what the institution will look like financially in five to ten years or more. How will it be raising revenues? How will it be setting fees? How will it allocate funds? How will it invest?

Financial strategies must reflect the goals and strategies which govern other sets of decisions. A full strategic plan for a college or university includes marketing and academic program strategies and plans. Marketing strategies describe who will be served and how they will be reached. Academic program strategies describe the content, structure, and priorities of developing course offerings, majors and departments. For most colleges and universities, the plans for the academic program have the highest priority and to a large extent dominate the strategies formulated in other areas. Institutional strategies range from strategies to excell to strategies to survive. For example, one strategy might include a design to attract better prepared students, that is, to "move up" in the market. Another strategy might be to improve overall reputation by excelling in research contract acquisition. Other institutions have formulated explicit survival strategies by decreasing their reliance on endowment income while increasing student to faculty ratios as shown in Baldridge and Tierney (1979: 53-66).

Risk

Collier and Patrick (1978: 21) define risk as "the potential for financial difficulties which is inherent either in the institution's capital structure or in the way it carries out its operations." Collier and Patrick suggest that measures of risk include the amount of debt carried by the institution and the relative endowment yield. As part of their research Collier and Patrick (1978: 22) also suggest several other measures which fall in the realm of risk including measures of revenue stability and financial flexibility.

There are at least three aspects to risk. First, risk encompasses the probability that some event, usually with negative consequences, will occur. Second, the degree of risk depends on the monetary impact of the outcome. Third, nonmonetary outcomes and side effects also determine the degree of risk. For example, an institution is in a position of high risk if it faces a fifty percent probability of a twenty percent enrollment decline, costing $800,000 in lost revenue and necessitating the discharge of thirty faculty.

Colleges and universities face risks in many areas. Revenue risks include enrollment fluctuations due either to falling application rates or falling acceptance rates, fluctuations in appropriation levels, fluctuations in gift levels, fluctuations in research contract levels, and fluctuations in endowment levels. For example, expenditures expose the institution to risk because of the potential of fluctuations due to changes in rates charged by utility companies and changing salary demands. The chance of litigation is another risk, though with a much smaller probability.

Institutions also face other risks not directly related to revenues and expenditures. Research programs can yield solid results and alter the institution's reputation. Football teams with losing seasons can affect the institution's fortunes. The diversity of the student body with respect to academic preparation can widen, and this diversity can alter the burden on remedial programs and change retention rates.

Institutional Resources

The second factor which must be examined when designing an institutional financial strategy is the level and diversity of institutional resources, both financial and nonfinancial. Financial resources include liquid reserves for the payment of immediate obligations, true reserves set aside for contingencies,

and endowments which are in general not available for contingencies but which form an important part of the institution's capital structure.

Nonfinancial resources exist in the form of the institution's academic programs, faculty and staff, students, student services, management systems, and physical facilities.

CONCEPTUAL FRAMEWORK FOR DEVELOPING FINANCIAL STRATEGIES

From the point of view of investment decision making, the basic financial strategy is simply to maximize return while protecting core activities. In other words, an institution should take risks up to the point where the institution's core activities begin to be jeopardized.

An institution may deplete its reserves, tenure its faculty, and raise tuition only up to the point where a significant probability of revenue decline exists, especially when this decline would begin to impinge on core academic and administrative programs. The elements necessary for describing any institution's financial strategy are thus risk, resources and core activities.

A definition of an institution's core activities is not easily developed, however. At a minimum, core activities include major academic programs and administrative areas. Dividing a budget between core activities and noncore activities is a major task of strategic planning. The crucial questions include: which programs are necessary for institutional survival, and which programs, if eliminated, would change the fundamental character and mission of the institution such that its current supporters would find it unrecognizable? Many institutions may find that ninety percent of their budget is dedicated to core activities. If the activity had not been essential, they would have cut it years ago.

Apart from the difficulty of defining core activities, the short framework above suffers from a certain naivete regarding risk. Many institutions, solely because of the economics dictated by their history and mission, currently face risks which jeopardize core activities. Their problem is not one of manipulating risks and resources, but one of survival. For these institutions, this framework is less a guide for developing strategies than a description of a set of options which the institution might one day address, if conditions improve. Balancing risks and resources represents a goal toward which these institutions may work, rather than a currently operational strategy.

Taking risks while protecting core activities requires that core activities be buffered against fluctuations. The more resources which may be placed into buffers, the greater the level of risk which may be accepted without jeopardizing core activities.

Each institution, therefore, faces an investment-style dilemma: should available revenues be used to build core activities or to buffer core activities from risk? The answer depends on the level of risk imposed by external forces (which is to some extent manipulable), and the effectiveness of buffers in comparison to the needs for more core activity support. What then are the buffers which college and university administrators have available?

Active Buffers

Active buffers are those resources or mechanisms which require that any unplanned detrimental fluctuation of revenues or expenditures be directly absorbed by expenditure reduction or revenue increase. For example, institutions with declines in enrollment may protect themselves by normally employing part-time, nontenured faculty. Expenditure reduction is easily accomplished by not rehiring these faculty following an enrollment decline.

Some institutions are able to absorb fluctuations by making core activities only a portion of their expenditures. The rest is sometimes called "fat." During times when a legislature, for example, is generous, "fat" increases; when the legislature turns to austerity programs, "fat" is reduced. In this manner core programs are protected from fluctuations in the generosity of legislatures.

Other institutions build up protection from fluctuation by adding programs with the probability of a limited life cycle. These programs may be part of the "core" during their early years, but may be eliminated should austerity occur. Extensive psychological counseling services were very prevalent on college campuses during the 1960's. Many campuses have now eliminated these services as financial stringency has increased and demand for such services has decreased. Core activities have been protected by these buffers, although their origination had nothing to do with buffering.

Finally, many institutions have successfully buffered core activities from revenue decline in one area by increasing revenues in other areas. Falling endowment yields have caused institutions to seek more students and charge higher

tuitions. As private institutions have reached the limit of tuition and student increases, fund raising campaigns have been launched. Many public institutions facing uncertain appropriations for items they consider to be part of their core activities have also begun capital campaigns to increase the level of gift support.

Passive Buffers

Passive buffers are those resources or mechanisms which can be used to protect core activities from fluctuation (including elimination) without requiring expenditure reduction or revenue increase. The most common passive buffer is a reserve for contingencies. If revenues decline or expenditures increase, this reserve may be tapped to supplement available revenues.

The decision whether to apply an unexpected gift to current needs or to place it in a reserve like the quasi-endowment is governed by the institution's financial strategy.

Another related method of temporarily buffering core activities is to borrow funds. In many ways this mechanism is similar to the use of reserves. Financial reserves often earn interest and dividends, and their loss effects the revenue raising abilities of the institution. Likewise, borrowing funds requires the payment of interest which prevents a portion of revenue from being distributed to other activities.

Borrowing funds and tapping reserves both require adequate preparation in the form of securing credit or building reserves. In either case, the necessity of substantial expenditure reductions or revenue increases is postponed.

Another form of buffer is in use because gift revenues are always uncertain. An institution can rarely know in advance how much it will receive in any year. Some institutions have reduced the risk of an unexpected decline in gift revenue by not budgeting these revenues until the year after they are received.

Endowments offer the same uncertainty. Stanford University has experimented with endowment payout rules which, while not providing the same level of support each year (to do so would occasionally require the liquidation of principal in years in which total return was low), provide a level of support which does not fluctuate as strongly as does the total return on the endowment portfolio. This work is discussed in Massy et at (1977).

Finally, a very common passive buffer is conservatism. Revenues are budgeted

at lower levels than are actually expected; expenditures are budgeted at rates slightly above expected costs. The unbudgeted revenue and the unexpended portions of expenditure budgets, when they materialize, become available either for noncore activities or to build financial reserves. In years in which revenues fall or expenditures jump, conservative budgeting provides a cushion to protect core activities.

The constrast between active and passive buffers is one of control versus conservatism. The active buffers require the analysis of expenditure and revenue patterns. Active buffers require that expenditures be carefully monitored, and that budget systems be in place with sanctions available to thwart overruns. Passive buffers require only that certain funds be unspent for varying length of time. Certainly some control is necessary with passive buffers in order to make these funds available in the first place, but the style of budgeting necessary to create reserves is far different than the style necessary to effect immediate expenditure reductions.

IMPLICATIONS FOR ANALYSIS

The development of financial strategies requires the careful and continued monitoring of risks and resources. The risks which an institution faces are constantly changing, and financial strategies which were once appropriate may no longer be best for achieving goals while minimizing threat to core activities. Survival requires that appropriate buffering levels be maintained for existing levels of risk; yet, risk levels vary with the strategies chosen to provide resources to core activities. Institutions must monitor financial and non-financial resources and three aspects of risk: risk expectations, risk preparation and risk tolerance.

Resources

Institutions must maintain information on trends in resource levels. The proportion of financial reserves to the total budget tells the institution the amount of funds available should revenues decline relative to the need for those revenues. As the budget increases, larger reserves may become necessary if risk also increases. Larger budgets often indicate larger risks.

The decision to allocate more funds to financial reserves depends on an analysis of the adequacy of core activity resources. Faculty to student ratios,

faculty salary levels, the condition of buildings, and retention rates of students all need to be monitored to help formulate the potential availability of revenues for use in building financial reserves. While increasing risk may indicate the need for greater investment in financial reserves, declining retention rates may dictate that more available resources be allocated to student services. An assessment of the need for resources to fulfill academic strategies must be traded-off against the need for building buffers against risk.

Risk Expectation

Risk expectation includes measures of the external (to the institution) determinants of risk. What is the probability of an enrollment decline? What is the probability of various endowment return rates? (One institution has built financial strategies around the expectation of a median total endowment return level of eleven percent with a standard deviation of twenty-five percent). How large have been the historic fluctuations in gift receipts? Are certain expenditure contingencies predictable?

Risk Preparation

Risk preparation refers to the institutional preparation for fluctuation, i.e., the adequacy of various buffers. At what level are financial reserves? How much borrowing has the institution undertaken? How flexible is the institution's expenditure structure? How many tenured faculty are there? How many part-time faculty members are there? What proportion of the total budget must be regarded as dedicated to core activities? What revenue increase options remain?

Risk Tolerance

Risk tolerance refers to the institution's attitude toward the possible deterioration of core activities. Administrators are willing to tolerate differing amounts of jeopardy toward core activities depending on personality, institutional history and mission. For some institutions, a narrow mission and a long history require that core activities be well protected. Other, perhaps newer, institutions may be in a better position to risk curtailment of some core activities without severely undermining the institution. The traditions of Harvard are very different from those of a community college.

One of the comments one hears most often on community college campuses is that the administration tolerates high levels of risk—they are willing to take chances with new programs and new students. While monitoring institutional attitudes toward risk is relatively difficult, little more than a general understanding of the institutional risk profile is necessary for developing financial strategies.

In a project cosponsored by the National Association of College and University Business Officers and the American Council on Education, a workbook has been developed to assist administrators in the development and understanding of financial trends. The workbook by Dickmeyer and Hughes (1980) focuses on the analysis of financial strategies and is intended to give the user an understanding of the institutional balance between risks and resources. The workbook assists in monitoring five areas: financial resources, nonfinancial resources, flexibility, revenues and expenditures.

STRATEGIES IN THE FACE OF CHANGING LEVELS OF RISK

Build Buffers

This suggestion is obvious following the discussion above. The basis for a decision to build buffers is less obvious. Each method of building buffers requires that institutional revenues be diverted from core activities to be invested in buffers. The justification for such a diversion of revenues to build buffers requires that the probable impact of a significant revenue decline or expenditure increase be greater than the needs of current core activities. Should funds be invested in programs or buffers? Have the effectiveness of buffers declined? Would the "payoff" from investments in core activities be sufficient that the buildup of buffers can be temporarily neglected?

Choosing among various buffers also resembles an investment decision. Financial reserves earn additional revenue and are usually sufficiently liquid to be available as needed. Building up "fat" like increased staff travel for professional development will probably be intrinsically beneficial to the institution. Clearly, funds could be "invested" in either manner. Would the benefits of increased professional development be worth the trauma of cutting these benefits during a revenue decline? The use and choice of buffers thus rests on a standard investment theory framework, except that many of the "payoffs" are nonmonetary.

In order to justify investment in any buffer, the probability of a traumatic budgetary event applied to the impact of the event which could be mitigated by a buffer must exceed the value of investing the funds in a core activity. This requires value comparisons which are difficult to undertake, but similar trade-offs are the standard fare of college and university administrators.

Reduce Exposure by Diversification

In a sense diversification is a variation of increasing buffers. Institutions may improve their risk exposure by lessening their dependence on single sources of income. Public institutions may seek greater levels of annual gift support. Private institutions may invest endowment in land or commercial ventures.

More and more institutions are diversifying by seeking greater research funding. Institutions are opening divisions, seeking a broader age distribution of clientele, and opening new degree programs.

Reduce Exposure by Increasing Flexibility

A reduction in long-term commitments increases the institution's ability to use active buffers. Institutions are replacing tenure agreements with five year contracts for new faculty. Some institutions are seeking a greater reliance on part-time faculty. Construction has been reduced on college campuses, allowing the future possibility of a reduction in debt service commitments.

SUMMARY

Financial strategies have been presented as plans to increase return (and hence risk) to the point where protection of core activities begins to break down. The stages for developing a financial stragegy are: 1) formulate and examine academic program, research and marketing strategies; 2) define core activities necessary to maintain the institution with its academic, research and marketing strategies; 3) measure the levels of risk created by these internal, nonfinancial strategies and by external forces; (4) measure the levels of buffers like financial reserves available to protect core activities from risk; and 5) trade-off the requirements to increase buffers against the need for

additional nonfinancial resources necessary to accomplish core strategies.

The role of the financial manager is one of monitoring risk and resource levels, and participating in the trade-off between the need to build buffers and the need to build other resources. With the prospect of increasing financial stringency in American institutions of higher education has come the necessity of acknowledging changing levels of risk. Financial management must be better integrated into strategic planning for institutions of higher education to be able to cope with the uncertainties of the coming decade.

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FINANCIAL PROBLEMS FACING SMALL INDEPENDENT COLLEGES

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Abstract

This essay presents new evidence on the financial problems of colleges under 1000 in enrollment. Blame for their difficulties, however, is not placed on the burden of a set of minimum or "fixed" costs which colleges of any size must bear. The difficulties are due to enrollment fluctuations and the cost pressures of providing special approaches to education inherent in small colleges. Only a small set of truly irreducible fixed costs are postulated. Colleges have used growth not so much to capitalize on economies of scale as to provide evidence to their constituents of success. As a result the ranks of small colleges remain populated with those institutions experiencing financial difficulty, while more successful institutions have attained a larger size. In an era of limited growth potential, small colleges must replace growth as a symbol of success with other marks of achievement.

Introduction

The economics of typical production organizations suggest that smaller organizations may generate insufficient production volume for revenue contributions to cover a minimum level of fixed costs. Thus, if all colleges behave like typical production organizations, then small colleges will be in poorer financial condition than large colleges (other things being equal). The term "economies of scale" has been used to indicate that costs per unit (in this case, per student) will necessarily be higher for small production organizations than large organizations because fixed costs must be spread to fewer units of output in the smaller organizations (Carnegie Commission, 1971).

Because small colleges compete for many of the same students as large colleges, small colleges must charge substantially the same tuition price as larger, similar institutions. Under the economies of scale theory, these small schools are caught by their low volume between a fixed price level per student and high fixed costs which must be spread to a small number of students.

The theme of the following essay, however, is that the theory of economies of scale cannot be easily applied to higher education institutions because of the ability of colleges to design cost structures commensurate with the number of students enrolled when the institutions are at capacity, yet, that declines in enrollment have a major impact on costs per student. The existence of specific fixed costs which must be borne by institutions of any size is <u>not</u> well documented in the literature on college economies of scale. The greater degree of financial problems among small colleges is thus believed to relate to the demands of the special missions of small colleges and to the tendency of many of the most efficient and successful colleges simply to grow larger,

leaving behind i the small categories a set of institutions with many difficulties. Inis essay thus contends that the belief that the problems of small colleges necessarily relate to the failure to take advantage of economies of scale obscures some of the true difficulties of small colleges.

To avoid confusion two terms will be defined at this point. "Fixed costs" will be those costs which a college of any size experiences, for example, the president's salary and the cost of a minimum collection of library volumes. "Sticky costs" will be defined as those costs which remain unchanged in the face of an enrollment decline (costs insensitve to volume reductions). The salaries of tenured faculty and the cost of maintaining buildings are not easily decreased following an enrollment decline, for example. This difference is evident for faculty salaries where there is no obvious "fixed" or minimum level for faculty salaries. As enrollment increases, more faculty are hired. Faculty salaries tend to be "sticky," however, because of the difficulty of altering personnel commitments. This report will contend that the effect of "fixed" costs on the economic health of a college is far less severe than the effect of "sticky" costs during an enrollment decline. Hence, the conclusion of the Carnegie Commisaion, that a minimum size exists for a college for economic reasons, is disputed.

For the purpose of this essay, small colleges will be defined as institutions with fewer than 1000 full-time equivalent undergraduate students. Although this number is arbitrary, significant reference to this size has been made in the literature (Carnegie Commision, 1971, p. 85). Also, discontinuities in the data on financial condition at about the 1000 student point makes this an interesting limit for smallness.

The Financial Condition of Small Colleges

Using data collected for the fiscal years ending in 1976, 1977, and 1978, by the National Center for Education Statistics (NCES is a branch of the Department of Education), some conclusions may be drawn about the relationship between size and financial stability. The criterion for financial stability indicated on Figure one is the holding of financial reserves. The only way an institution may accumulate these reserves is through a series of revenue surpluses. Deficits serve to erode reserves; surpluses build them up. Reserves are also intrinsically valuable because they protect core operations, like the instructional program, during times of revenue downturn by providing emergency cash flow.

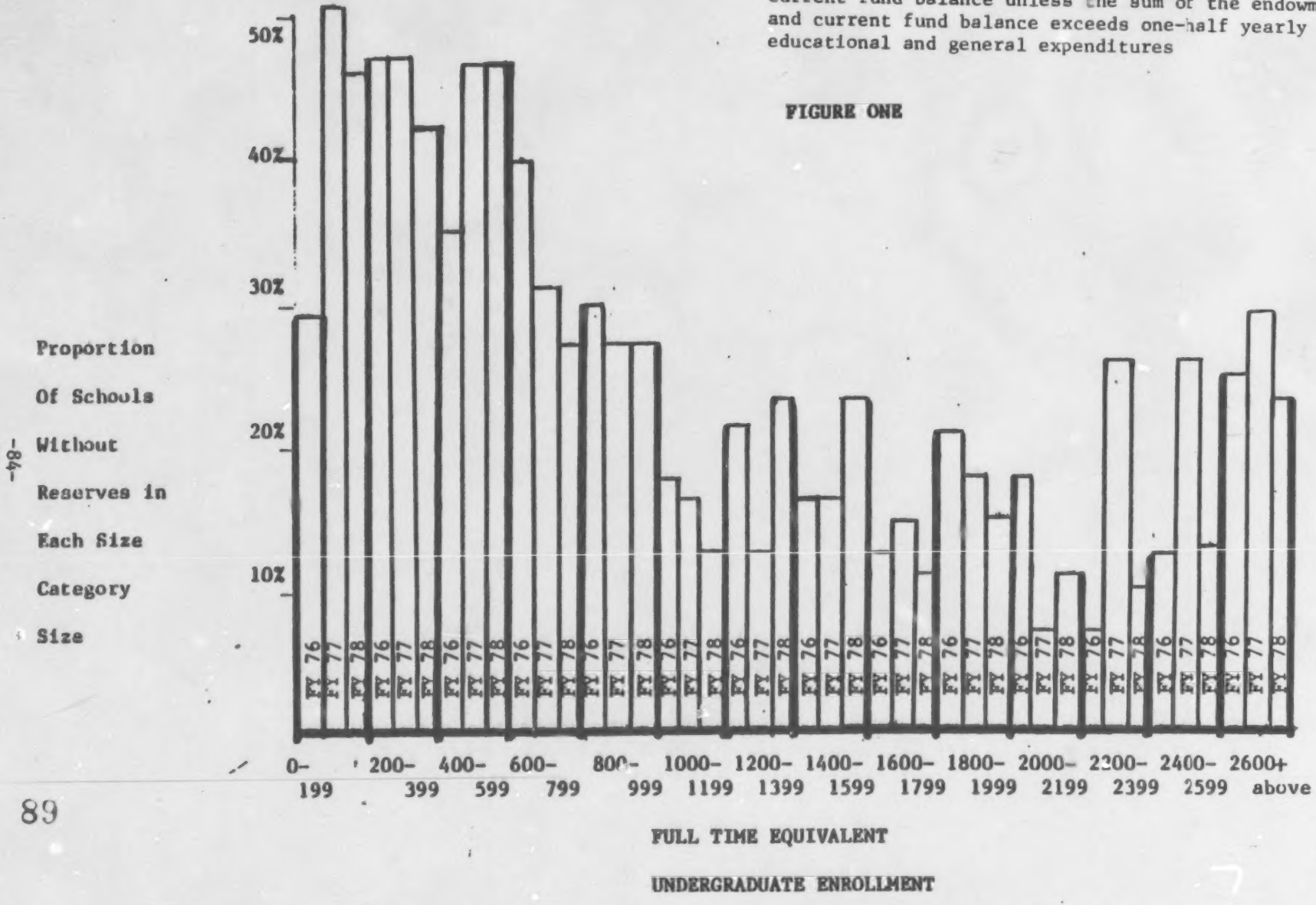
A lack of reserves was operationally identified for use in Figure one whenever an institution had both a negative current fund balance[1] and an insignificant endowment balance (in comparison to its current fund balance deficit)[2]. Twenty-eight percent of the 876 independent four-year colleges did not have these reserves in 1977-78. Eighteen four-year colleges were not included in the analysis because of unusually high or unusually low per-student expenditures, althought their data was provided by NCES. (Gallaudet was one such school eliminated, for example, because of its higher per student costs as a college for the aurally handicapped.) The twenty-eight percent

[1]The current fund balance is the difference between assets and liabilities for for an institution's operating fund. The operating fund does not hold the accounts for endowments, student loans, or buildings.

[2]For this analysis, any school which had more than the equivalent of one-half year's expenditures in its endowment in excess of its (negative) current fund balance was classified in the "with reserves" category. If the sum of the endowment fund balance and the current fund balance did not exceed the equivalent of half a year's expenditures and the current fund balance was negative, the institution was classified in the "without reserves" category.

"Without reserves" is defined to be having a negative current fund balance unless the sum of the endowment and current fund balance exceeds one-half yearly educational and general expenditures

FIGURE ONE



Three years of reserve information are given for each size category. Based on NCES financial data for years ending in 1976, 1977 and 1978. (Appendix one gives the numbers of schools in each category.)

without reserves thus had greater current fund liabilities than current fund asssets and were without significant compensating balances in their endowment funds.

Although the dividing line used to separate institutions with and without reserves may be somewhat arbitrary (that is to say, is one dollar in reserves really any different than one dollar in deficit in spite of the fact that our definition would call one "with reserves" and the other "without"?), there is great symbolic significance in going from a current fund balance surplus to a current fund balance deficit. At the transition from plus to minus, the institution no longer has sufficient current assets to cover current liabilities. At that point, the cumulative operating position of the institution shows greater deficits than surpluses.

However, Jenny's (1979) warning against the use of current fund balances as indicators of financial condition means that the number of institutions "without reserves" as defined above gives only a minimum for the number of colleges in financial difficulty. As Jenny points out, institutions may have accumulated small reserves at the same time that the condition of their physical plant has deteriorated. This deterioration may be so great that the cost of necessary repairs could wipe out any accumulated financial reserves. Nonetheless, the proportion of institutions without reserves will be used to indicate the relative prosperity of groups of institutions by size because there is little indication that conditions not registered by current fund accounting practices, like deferred building maintenance, are unevenly distributed by size across institutions.

Figure one shows the distribution of schools without financial reserves by size categories for the fiscal year ending in 1976, 1977, and 1978. Figure one shows a discontinuity around a student body population of 1000 FTE.

undergraduates. For the year ending in 1978, 33 percent of schools with FTE below 1000 had no financial reserves, while only 18 percent of the schools above 1000 FTE had no financial reserves. This is an improvement over 1976 when 37 percent of the institutions below 1000 FTE and 18 percent above 1000 FTE were without financial reserves. Notice that large enrollments are no guarantee of financial stability. There were three schools with enrollments greater than 4000 with no financial reserves.

Clearly, Figure one supports the conventional wisdom that smaller colleges face significant financial difficulties, especially when compared to larger institutions.

The Literature on Economies of Scale

The study by the Carnegie Commission on Higher Education, New Students and New Places (1971), explored the relationship between costs per student and institutional size. Using data derived from NCES surveys for the fiscal year ending in 1968, the Commission showed declining costs per student with increasing size. For independent liberal arts colleges they inferred from this data that a minimum size exists at about 1000 students.

Corrallo (1970) explored costs per student by function and concluded that economies of scale probably exist for the library and building maintenance areas.

Using path analysis techniques with NCES data provided for the fiscal year ending 1976, McLaughlin et al. found that size does have an effect on costs per student, but that the amount of the effect is small. The effect of complexity as measured by the number of degree programs appears to affect costs per student more significantly.

Similar explorations by Jordan (1965), Dickmeyer and Hughes (1979) and

Dickmeyer (19)) with data from community colleges show some evidence of declining costs per student with increasing size for samples of institutions. The relationships in all cases are not without some ambiguity due to the large amount of scatter around the averages. Marks (1980) also explored the relationship in community colleges between complexity and costs per student and found the effects of increasing complexity to be important.

These studies do not present convincing examples of true fixed costs, however. Corrallo's study comes the closest with the cost by function exploration. There may be a minimum set of library holdings for a college of any size. There may also be a minimum physical facility size at which contracting for specialized services ceases and certain professionals (like electricians and plumbers) are put on the college's payroll at some savings. Corrallo's study, however, shows no other areas where fixed costs may exist. Instruction, student services and administration show little indication of fixed expenditures.

To support the fixed cost hypothesis espoused by the Carnegie Commission, several arguments are commonly advanced. The classic reference in these arguments is to the president. An institution, no matter how small, still needs a president. Second, increasing size may mean that classes which were once half full may now be made completely full, absorbing some faculty costs. More students may mean a few new courses, but existing courses may be more easily filled. Third, in an argument derived from both of the above, a certain minimum presence of talent is needed on campus. There must be one president, one person who can manage fiscal affairs, one person familiar with arcane federal financial aid reporting requirements, one person who can raise funds, one person who can teach writing and probably several more. Each of

these people may be absolutely indispensable. What would happen if there was no one who could process federal financial aid or who could see that payroll checks were written? Small, as well as large, institutions must maintain this minimum of talent. Obviously, the more students over which these "fixed" costs may be spread, the less burdensome they become.

These arguments, however, are slightly flawed. While it is true that all institutions have only one president, the size of the president's staff and even the president's salary tends to increase with increases in the size of the institution. In fact, the complexities of the larger organization may force the size of the budget of the president's office to grow faster than overall college growth. Some support for this idea is in McLaughlin et al. (1980) and Corrallo (1970).

The second argument concerns class size. More students increase the probability of filling previously half-filled courses. But, larger college size may be less important for obtaining full classes than the outcome of the negotiation between faculty (and their expectations about what is to be offered) and administration (and minimums for class sizes and limitations on the number of courses to be offered). In the end, greater college size may improve the fulfillment of faculty objectives about what should be offered, but course-offering management is the institution's best hope for obtaining full classes. Larger size is no guarantee of more efficient use of faculty.

The third argument has somewhat more merit. Institutions do require certain minimum levels of talent. It is important, however, to understand the small impact which this "minimum core" has on institutions. The true minimum may be so small that a college of any size may be able to support these few people. At the smallest colleges it is possible to "double up" some talents. Business officers may participate in the filing of federal financial

aid reporting forms. Writing specialists may also instruct in literature. Experience also tells us that all these "minimums" tend to grow quickly with size. The minimum admissions person soon needs extra clerks and recruiters. All these "minimum" tend to grow so quickly with increased size that one may doubt their lack of variability.

How then does one explain the relationships between size and costs per student as shown by the Carnegie Commission. Fortunately, the Commission published scatter diagrams of this relationship. An examination of these diagrams makes it clear that the inverse relationship would be less plausible were it not for five to seven outlying, small, high cost per student institutions shown in each of the graphs in the upper left-hand quadrant. If these institutions were not included, there would be a much fainter statistical relationship between size and cost per student, and any regression lines would necessarily be flatter.

Figure two presents a diagram similar to the ones presented by the Carnegie Commission in 1971. Figure two is based on data collected by NCES for the fiscal year ending in 1978 and shows educational and general expenditures per student as a function of total full-time equivalent enrollment (defined as the sum of the number of full-time students plus one-third the number of part-time students enrolled in the Fall of 1977). All institutions classified by the Carnegie Commission as private liberal arts are shown (N=568)[3]. An inverse function curve can be fitted to the points with a reasonable amount of accuracy ($R^2 = .66$; $p < .001$). The curve shows a precipitous drop in costs per student as enrollments fall.

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[3]Ten schools with educational and general expenditures per student either above $10,000 or below $1,000 were excluded.

COSTS PER STUDENT VS. ENROLLMENT

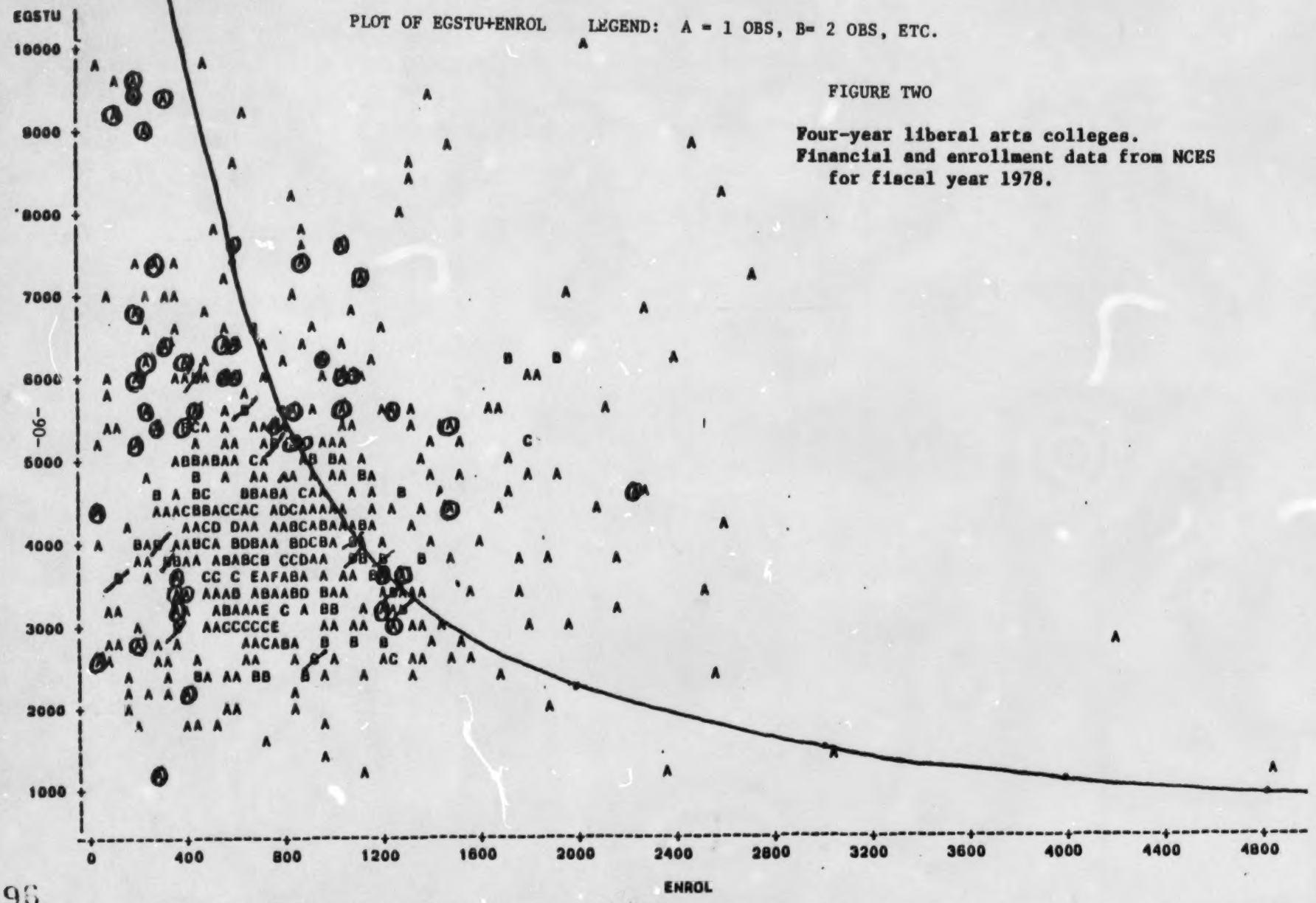


FIGURE TWO

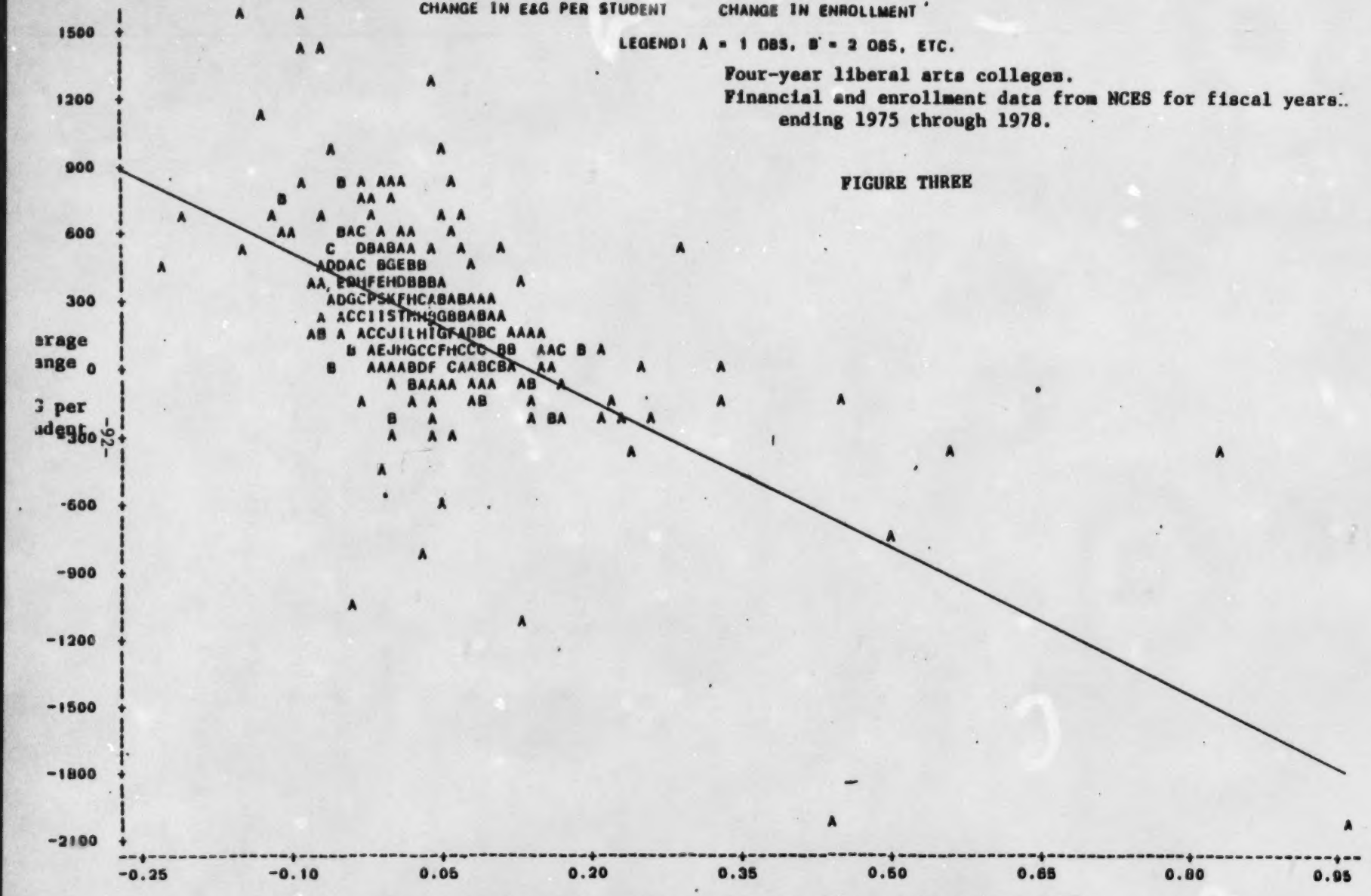
Four-year liberal arts colleges.
Financial and enrollment data from NCES for fiscal year 1978.

ENROL = Full time equivalent enrollment Fall 1977. EGSTU = Educational and general expenditures per FTE student

In an attempt to separate "fixed" and "sticky" costs, those institutions which had Fall 1977 enrollments five percent or more below Fall 1974 enrollments were circled on the plot (circling was not attempted where the points are most dense, all enrollment decliners outside the dense area are noted--slashes show that where two schools overlap on the plot, as in "B", one of the schools registered an enrollment decline). Note the number of schools with enrollment declines which also show high educational and general expenditures per student.

Figure three demonstrates the relationship between changes in enrollment and changes in costs per student. Four years of enrollment data and four years of educational and general expenditures per student were used (for the fiscal years ending 1975, 1976, 1977 and 1978). For each school a regression line was fit to the four points for each variable and the slopes of those lines were taken as indicators of change in enrollment and change in costs per student. Thus, figure three shows the dependence of changes in dollars of educational and general expenditures per student on the average percentage change in enrollment from Fall 1974 to Fall 1978.

Figure three shows that declines in enrollment lead to increases in costs per student. Increases in enrollment lead to decreases in costs per student. The steep regression line fits the data satisfactorily ($R^2 = .35$; $p < .001$). The plot indicates that a decline in enrollments of ten percent per year can increase educational and general expenditures above the cost increase for institutions with no decline by $193 per student. The effect of inflation is noticeable in the plot since institutions with no change in enrollment were shown to have increased costs per student by $272.



Four-year liberal arts colleges.
Financial and enrollment data from NCES for fiscal years ending 1975 through 1978.

FIGURE THREE

Average percentage change in enrollment for fiscal year 1975 through 1978
(Enrollment equalling full time plus 1/3 part time)

What many previous studies seem to show, therefore, is that a few small institutions have exceptionally high costs per student, while large institutions rarely show such incredibly high costs per student. The studies have also shown that many small institutions have suffered enrollment declines which have forced unit costs upward. Explaining the cost behavior of these few institutions may be more readily achieved by examining factors other than fixed costs. For example, small schools may be more likely to experiment with costly programs. Small schools may be likely to file incorrect surveys due to the necessity of several specializations for each professional (with "masters" of none). Also these few may be the institutions which have suffered the greatest enrollment declines and may thus be incurring the greatest adjustment problems with regard to costs per student. While institutions of all sizes suffer enrollment declines, a statistical bias resulting in more "decliners" exists with the group of small colleges because institutions which suffer declines do indeed become smaller and tend to accumulate in the smaller categories.

Also, the larger number of institutions in the smaller size categories dictates that there will be a larger amount of scatter around the mean cost per student for these categories. However, because negative costs per student cannot exist, the scatter is biased upwards.

The data on financial condition shown in Figure one do seem to indicate some importance in keeping undergraduate enrollments above 800 to 1000. However, the impact of fixed costs should result in a much smoother progression of increasing financial health from the smallest to the largest categories. The smallest size category does not exhibit any greater degree of difficulty than the next two sizes up.

Finally, the question remains, if a lump of truly irreducible fixed costs does exist for higher education institutions, then why do 144 independent four-year colleges with enrollments under 600 have financial reserves (using fiscal

year 1978 data, for example)? The fact that some institutions can build small reserves, though they may have very low enrollments, means that large, truly intractable fixed costs may not exist for all institutions.

Other Explanations of Small College Financial Problems

Mission. Many small colleges have designed an education delivery system which emphasizes close contact with faculty. As Kershaw (1976) notes, many small colleges have high faculty to student ratios. These institutions compensate for their lack of breadth in academic areas with a concerted effort at improving the depth of the colleges experience. These institutions may indeed show higher costs per student.

Sticky Costs. Those institutions which were once larger and have seen some enrollment declines will tend to accumulate in the smaller size categories and may show somewhat higher costs per student.

Growth of the "fittest." This application of Social Darwinism to the development of higher education institutions depends on the acceptance of a few cultural axioms. First, if an enterprise is succeeding (especially an educational enterprise where success means that students are attracted with proficiency and graduate with nearly equal proficiency and then make lots of money and give some of it to the school), then the enterprise will grow. This is not perfectly true, but the tendency certainly exists. Second, most faculty would prefer a slightly larger institution. One or two colleagues, if placed in related areas, would make it more possible to collaborate on research and alternatively would make it somewhat more possible to get out of teaching courses in disagreeable areas.

The import of this tendency toward growth is that we would expect successful organizations to be larger, not because it is financially more sound to be

larger, but because larger is what they want to be. Less successful organizations either do not grow or they shrink.

This theory relates well to the data. We would expect to find some small, financially well-prepared institutions because they apparently value their small size and have chosen not to grow in spite of their "success." The break at enrollments from 800 to 1000 may be explained as a level of expectation—faculty pressure to grow eases past 1000, when departmental sizes may be deemed adequate.

Small institutions may thus simply be those which are unwilling or unable to grow. In small institutions costs per student are not expected to be that much greater than in larger organizations except for a few outliers for the reasons cited above (enrollment decline, special mission, a small amount of fixed costs). On the other hand, many small colleges simply have not located themselves in the education market in a way that allows growth. Demand is unsteady and the problems of charging adequate tuition to cover normal costs without further eroding enrollment are as difficult, if not more difficult, than coping with expenditures. The Carnegie data and Figure two show that in fact most small colleges have costs per student within a normal range (compared with larger colleges). What the data do not show is the difficulty which many small colleges have in generating adequate revenue to cover these costs.

Perhaps, we need more elaboration on the concept of financial "success," because we are proposing that it is "success" which has made some small colleges larger and which has given a more favorable financial outlook to these growing colleges. Institutions succeed at the "college game" either because they operate more efficiently than competitors (i.e., they offer more services for less cost), or because they have found more favorable niches in the "education market" in which to operate. The best niches have the fewest competitors,

the greatest potential demand, and the least costly required services (required by the demanders, i.e., the students). Success is thus partially the result of management and partially the result of mission. Management can improve efficiency. Mission is largely determined by the particular niche in the market in which the institution operates. This niche is also partially determined by geography, history, reputation, the students whom the social system has deemed appropriate for this institution, and the extent of competition for these students (and for other funds).

Nothing has done more to change the probabilities for success at different points in the market than the enormous growth in the public sector, except perhaps the enormous growth in public subsidies to education through student aid and other programs.

Thus, institutional "success" only partially derives from institutional management. Public policy and the historical accidents of mission and geography play a large part in determining success. Size may be the least important ingredient.

Actual Problems Facing Small Colleges

Rather than concentrate on a set of irreducible fixed costs which can only be ameliorated by growth, small colleges face another set of problems which have solutions—not easy solutions, but possible solutions. For many small colleges growth may not only be undesirable, it may be impossible. Growth without adequate preparation may indeed be the least favorable solution. The work by Baldridge and Tierney (1979) highlights the findings of McLaughlin et al. that growth brings complexity and that previous management difficulties are then only compounded. The actual problems facing small colleges may not be amenable to growth solutions. It is important to note than enrollment growth up to the institution's current facility and faculty capacity will lead to cost

reduction benefits as shown in Figure three.

The Need for Compensation. Small colleges with limited academic offerings may need to compensate for that deficit. Astin and Lee (1972) have provided a classic description of the advantages of these small colleges. Unfortunately, many of these advantages are costly. Nonetheless, the current difficulty facing many faculty in finding academic openings is an opportunity for small colleges to upgrade their faculty and to build an academic program where both faculty and students benefit from the more intimate contact engendered by small colleges. The recent advice of Mayhew (1980) is appropriate for small colleges: emphasize historic strengths.

Risk. All colleges face the potential of enrollment fluctuations. Small colleges are much more at risk of permanent damage, however, because they are much closer to the disheartening point of no students at all. A decline of 200 students is only damaging to an institution of 1600 students, while it is devastating to an institution of 400. More than other institutions, small colleges must build buffers to protect themselves from revenue fluctuations. Financial reserves, endowments and timely donors are important factors in protecting small colleges. While this paper is far from a complete case for special federal or state assistance to small colleges, the need for special assistance is indicated.

Library Sharing and Full Utilization of Facilities. With fixed costs probably a factor in these two areas, small institutions need to investigate the full use of these facilities. Library sharing plans and the use of facilities for community functions may help mitigate the impact of fixed costs in these areas.

Conclusions

The decision of the most appropriate size for a liberal arts college should

not be made on economic or financial grounds. The economic benefits through greater efficiency of increased institutional size are too debatable to play an important role in this decision. The problems of fixed costs for small colleges are negated by the problems of complexity for larger ones. Far more important are concerns not covered in this paper over risk, intimacy, the need for a more sophisticated administration, the need to broaden academic offerings, and the need to offer finer specializatons. Financial concerns pale in comparison. The pessimism that small colleges are doomed to failure because of the burden of a large block of fixed costs is unwarranted. The problems facing small colleges are not small, but they are not insurmountable.

APPENDIX A

Number of Schools in Each Size Category
Shown in Figure One

Number of Undergraduate FTE's - Range	Number of Schools of That Size			Number of Schools Without Reserves		
	FY 76	FY 77	FY 78	FY 76	FY 77	FY 78
0- 199	55	57	57	16	29	26
200- 399	85	88	81	40	41	34
400- 599	129	120	122	45	56	56
600- 799	139	138	127	56	43	34
800- 899	91	95	106	27	26	29
1000-1199	77	86	78	14	15	10
1200-1399	68	31	61	15	4	14
1400-1599	45	49	47	7	8	11
1600-1799	41	65	46	5	9	5
1800-1999	28	28	27	6	5	4
2000-2199	28	27	27	5	2	3
2200-2399	14	19	21	1	5	2
2400-2599	17	19	16	2	5	2
2600 and above	52	42	60	13	12	14
	869	864	876	252	263	244

Data based on HEGIS financial surveys. Fluctuations in numbers in any category and the total are due to enrollment changes, nonreporting, and classification shifts ("other four-year" to "university," for example. "Without reserves" is defined to be having a negative current fund balance unless the sum of the endowment and current fund balances exceeds one-half yearly educational and general expenditures.

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STATISTICAL PROFILES OF INDEPENDENT COLLEGES WHICH HAVE DEFAULTED ON THEIR FEDERAL GOVERNMENT LOANS

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The Project Approach

The general concern is that there is a need for indicators of financial health for colleges and universities. In this study, models were developed to predict unhealthy institutions.

Past research was limited to some extent because an objective measure of financial health was difficult to find in the nonprofit sector. However, this study defined ill health in a more objective fashion than previously possible. It was those colleges and universities which defaulted on their bond payment schedules from HUD and/or HEW.

Study Design

The population to be studied consisted of two mutually exclusive groups. The first was two- and four-year colleges which defaulted on their interest and/or principal payments on their loans from HUD and/or HEW. The second was those two- and four-year colleges that were able to meet their payment schedules. A sample of 240 institutions, 80 defaulters and 160 nondefaulters, was chosen. The selection process was based on a paired-sample design. Defaulters and nondefaulters were matched on a one to two basis according to type of control (public versus private) and enrollment size.

Three hypotheses were tested using this sample. First, a model could be constructed which would discriminate between defaulters and nondefaulters by choosing variables found in the literature in corporate theory, specifically those related to corporate bond ratings and default. Second, this model could be constructed by choosing variables found in the research on the financial health of colleges and universities, specifically those derived from the financial statements. Third, this model could be constructed by choosing the same variables as mentioned in the second hypothesis; however, those reflecting variablility over time and certain categorical variables also would be considered. The variables chosen for the first, second and third models are presented in Figures 1, 2, and 3, respectively.

	Corporate Statistic	College and University Statistic
Liquidity:	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{\text{Market Value of Endowment}}{\text{Current Fund Expenditures}}$
Fixed Position:	$\frac{\text{Sales}}{\text{Total Assets}}$	$\frac{\text{Current Fund Revenues}}{\text{Plant Assets}}$
	$\frac{\text{Debt}}{\text{Equity}}$	$\frac{\text{Plant Debt}}{\text{Plant Assets}}$
	$\frac{\text{Earnings before Interest + Taxes}}{\text{Interest}}$	$\frac{\text{Current Fund Revenues - Current Fund Expenditures + Interest Exp}}{\text{Interest Exp}}$
Operating Efficiency and Profitability:	$\frac{\text{Net Income}}{\text{Total Assets}}$	$\frac{\text{Current Fund Expenditures}}{\text{Current Fund Revenues}}$

Figure 1. Proposed variables for the first model.

	College and University Statistic
Liquidity:	Market Value of Endowment / Current Fund Expenditures
Fixed Position:	Plant Debt / Plant Assets
	Current Fund Revenues / Plant Assets
Operating Efficiency and Profitability:	Auxilliary Expenditures / Auxilliary Revenues
	Current Fund Revenues / Current Fund Expenditures
	Tuition and Fees / Current Fund Revenues
	Private Giving / Current Fund Revenues
	Academic Mission / Educational and General Expenditures
	Plant Maintenance / Educational and General Expenditures
	Student Aid Expenditures / Educational and General Expenditures

Figure 2. Proposed variables for the second model.

Variability:	Percent change of	Tuition and Fees / Current Fund Revenues	From prior year
	Percent change of	Private Giving / Current Fund Revenues	From prior year
	Percent change of	Plant Maintenance / Educational and General Expenditures	From prior year
	Percent change of	Student Aid Expenditures / Educational and General Expenditures	From prior year
	Percent change of	Academic Mission / Educational and General Expenditures	From prior year
	Percent change of	Current Fund Expenditures / Current Fund Revenues	From prior year

Categorical:	Coed or Not
	Religious Affiliation or Not
	Race Related or Not
	Liberal Arts II or Not

Figure 3. Proposed variables for the third model.

The three hypotheses were tested using multiple discriminant analysis. Cases were classified into two a priori established groups on the basis of certain variables. In all instances, the stepwise method was used to select the variables for the discriminant function for the year of the default. In Hypothesis I, data from one year prior to the default, and in Hypothesis II, data from one and two years prior to the default were analyzed. The direct method was used to classify cases for the years prior to the default.

Results of the Analysis

The classification results indicated that Hypotheses I and II reasonably were born out. The results were just scarcely better for the latter. The college and university financial model was based on most of the variables proposed in the corporate bond default model plus some new ones. This suggests that the newly introduced variables helped only slightly to increase the function's discriminatory power. The classification results for Hypothesis III made it unclear if the new categorical variables helped increase or decrease the function's discriminatory power. In the third model, the T tests of the proposed percent change variables indicated that the scores of these variables for defaulters and nondefaulters were nearly identical. It was decided not to include the percent change variables in the discriminant analysis. Degrees of freedom would be lost, but no new information would be added. Thus, only categorical variables were considered along with the previously proposed college and university financial variables.

Contributions of this Research

The contributions of this research lie both in its practical applications and its theoretical implications. On the practical side, the proposed models can be used by state and federal policy-makers whose decisions affect many colleges and universities. One way policy-makers can employ these models is to predict that certain nondefaulting institutions are in ill financial health. It can be done like this. Suppose that in the classification results, 20 percent of the nondefaulters were predicted to be defaulters. This means that there is a number of institutions which have characteristics of defaulters, but are classified as nondefaulters. One can extrapolate these results to the entire population. That is, if there were 1600 nondefaulting institutions and they were multiplied by 20 percent, it reasonably could be stated that there were approximately 320 institutions classified as nondefaulters which have characteristics of defaulters. (This, of course, assumes that the sample of nondefaulters is representative of the population.) It should be remembered that this study objectively defined ill financial health as those colleges and universities which defaulted on their loans from the federal government. However, the above analysis suggests that there were an additional 320 institutions that could have been considered in ill financial health; but, they have not been identified by this study as being in this state. Both the number and the specific identification of these institutions provide valuable information.

Also, on the practical side, the proposed models can be used by college and university administrators who make decisions which generally are intended to affect a certain institution. For example, they can apply these models and

determine if they classify their institutions as defaulters or nondefaulters. Like the above analysis for policy makers, if an institution was a nondefaulter and was classified as a defaulter, it would be considered in ill financial health. However, if the opposite was true, that is, if an institution was a defaulter, the prognosis is not clear. It is true that the institution has characteristics of nondefaulters. But what made it default? A closer look at that institution is warranted before a reasonable conclusion is reached.

Moreover, instead of employing an entire model or models, administrators might want to look closely at each individual variable. The reader should be cautioned that the models are accurate predictors partially because they are multivariate. However, the cutoff points of each of the variables composing the models independently can serve as warning signals of default. Therefore, administrators might want to know how much debt to assets and how little endowment to current fund expenditures an institution can endure before default begins to appear imminent.

One caveat should be mentioned regarding debt. In the models, the variable long-term debt to plant assets was positively related to default. This can be interpreted as, all other things being equal, institutions with more long-term debt are in danger of being in worse financial health than those with less debt. However, it is unlikely that the rate of inflation will abate significantly over at least the near to intermediate term. This actually bodes well for institutions with large amounts of debt because they will be making their interest and principal payments over time with "cheaper money."

On the theoretical side, the ability of these models to discriminate accurately between defaulters and nondefaulters has important implications to researchers. For instance, the results indicated that corporate bond theory can be used successfully to predict college and university default on loans from the federal government. It should be stressed that this study was limited in scope to default on debt. But the results suggest the possibility that certain other theories developed from research done on corporations in the profit sector could be applied successfully to institutions in the nonprofit sector. Potentially this opens the door to perhaps a wealth of available resources.

Further, the reader should recall that some of the same variables used to predict corporate bond default were used to predict default on college loans from HUD and/or HEW. This implies that colleges and corporations possess certain similarities. It should be realized that the former do not share the profit motive with the latter. As a matter of fact, so long as the nonprofit organization has sufficient resources to carry out its objectives, there is no real need or justification for making a profit or having an excess of revenues over expenditures. The concept of sufficient revenues, however, could be interpreted as these institutions must be able to pay their bills when due. Thus, for colleges as well as for corporations, outflows must be cushioned by a reservoir of assets, at least over the longer term. If not, this could lead to default and eventually to bankruptcy.

Finally, the overall results indicated that the underlying accounting data found in college and university financial statements served some predictive function. If utility is defined in terms of predictive ability, then

this project provided an empirical verification of the usefulness of these data. Past research has centered on the empirical validation of accounting data in the profit sector. However, this study suggests that these data found in colleges and universities financial statements, and possibly these of other nonprofit institutions such as hospitals and museums, could be useful to other research.

Limitations

It should be mentioned that this study obviously is subject to certain limitations. But these limitations do suggest avenues for future research.

For example, unhealthy colleges were defined uniquely as those which defaulted on their loans from HUD and/or HEW. The hypothesized models predicted these unhealthy institutions, and did not test the universe. This indicates a need to provide decision-makers with other models. For instance, a predictive model could be developed by using an equally objective but more generalized definition of financial health than default on loans from the federal government.

Also, the models did not classify the cases completely accurately into two mutually exclusive groups of defaulters and nondefaulters. One reason is that other variables not proposed in these models would have been better predictors of default. The selection of the financial variables was limited to some extent by the applicability to HEGIS data. Annual reports, which in general are more comprehensive, were not used because not enough were received. This implies that if HEGIS adds information to its reports or if more annual reports could be obtained, new variables could be proposed for the models.

Further, models composed of only financial variables predicted ill financial health just as well as models composed of the same financial variables plus additional categorical variables. This suggests that the financial variables are more important to the discriminant function. Yet, due to the sample design, both type of control (public ve sus private) and enrollment size were eliminated from consideration. If they were included among the other categorical variables, it is certain that the results would have been different.

Lastly, only three years of data were obtained for the 240 defaulters and nondefaulters. The years ranged from FY 1971-71 to FY 1977-78. Data were not obtained from HEGIS before FY 1971-72 because of the general criticisms on its overall accuracy. In the future, researchers should have more reasonably accurate HEGIS data available to them. Therefore, (rather than at the end of default or at one and two years prior to default) models could be tested to determine whether they can discriminate accurately between defaulters and nondefaulters at five or even more years prior to default.

THE CAPITAL MARGIN[1]

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Introduction

A short time ago, a cynical observer of the higher education scene might have said that a brick would have to fall on our heads to get us to pay attention to the issue of plant improvement. The bricks are now falling and, unless colleges and universities want to replace freshman beanies with hardhats, the industry must confront the issue.

Plant deterioration is only one of a number of physical capital problems now facing higher education. As new equipment and library acquisitions budgets stagnate, obsolescence creeps into the laboratories and libraries. Recent federal legislation mandates the retro-fitting of campus buildings to accomodate handicapped students. And dealing with rising energy costs will require major renovations of existing plants.

All these ingredients add up to a real witch's brew of capital problems. The infusion of additional capital may be the obvious antidote, but the prospective pharmacists are probably not going to knock each other over in a stampede to fill the prescription. Indeed, before we can expect any funding agency to step forward, the industry must articulate the problem, identify its dimensions, and offer a reasonable approach to its resolution. To date, efforts to describe the scope of the problem have been meager at best. Colleges and universities in various stages of dilapidation and suffering acute capital anemia annually report "balanced" budgets and often surpluses.

The fifth annual Bowen-Minter report identifies this phenomenon: "The data and opinions we receive from the institutions indicate year after year that most are holding their own. . .There is one area of cost, however, which is not adequately represented in either the data or the opinions. It is depreciation of assets. . . The information we receive is as favorable as it is because of the failure to recognize or report a slow and seemingly inexorable using up of capital. . . It is difficult to place a dollar figure on this deterioration. . . There are no ready statistics to inform us as to the number of dollars needed to bring the physical assets of higher education up to par."[2]

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[1]This presentation is based on the findings and recommendations of Hang-Gliding, or Looking for an Updraft, A Study of College and University Finance in the 1980's, by Hans H. Jenny with Geoffrey C. Hughes and Richard D. Devine. (To be published by the College of Wooster, May-June, 1981.)

[2]Independent Higher Education: Fifth Annual Report on Financial and Educational Trends in the Independent Sector of American Higher Education by John Minter and Howard R. Bowen.

The compulsion to balance the budget is understandable: the rest of the world expects colleges and universities to live within their means. College presidents and development officers can testify to the difficulty of raising money when the budget is in deficit. But to persist much longer in the charade of reporting incompletely on one's financial condition is to risk what may become an irreversible tide of decay and obsolescence.

The Capital Charge

One approach explained in Hang-Gliding is the formulation of a comprehensive Capital Charge policy that would become an integral part of the collegiate budget-making and reporting processes. The Capital Charge embraces the following three components:

--A Capital Renewal and Replacement (CRR) charge to cover renovation of existing plant and the replacement of equipment.

--A new equipment and library and laboratory acquisitions budget.

--A debt repayment schedule that includes internal borrowing.

The annual Capital Charge equals the sum of these three components. Each component is calculated separately (in the absence of a consensus, we use simple rule-of-thumb for each). Many institutions will want to develop their own standards for the Capital Charge, and base them on programmatic considerations. At this point, we are less concerned with the specific formulas than with the application of the basic concept.

The Capital Charge becomes the institution's objective for annual expenditures for the specified capital items. If the formula criteria are reasonable, the Capital Charge provides a sound basis for financial evaluation. We can measure what an institution did spend for capital items against what it should have spent. Institutions which do not fully fund their Capital Charges can report on the extent of their deferral of capital spending, including deferred maintenance. The Capital Charge thus responds to the "failure to recognize and report [the]. . .using up of capital" identified by Bowen and Minter.

Application of the CRR Charge

In Hang-Gliding we apply only the Capital Renewal and Replacement (CRR) portion of the Capital Charge to our sample of institutions. This leads to some interesting findings and to an important financial indicator--the Deferred Maintenance Ratio (DMR). We use the following formula for the Capital Renewal and Replacement Charge:

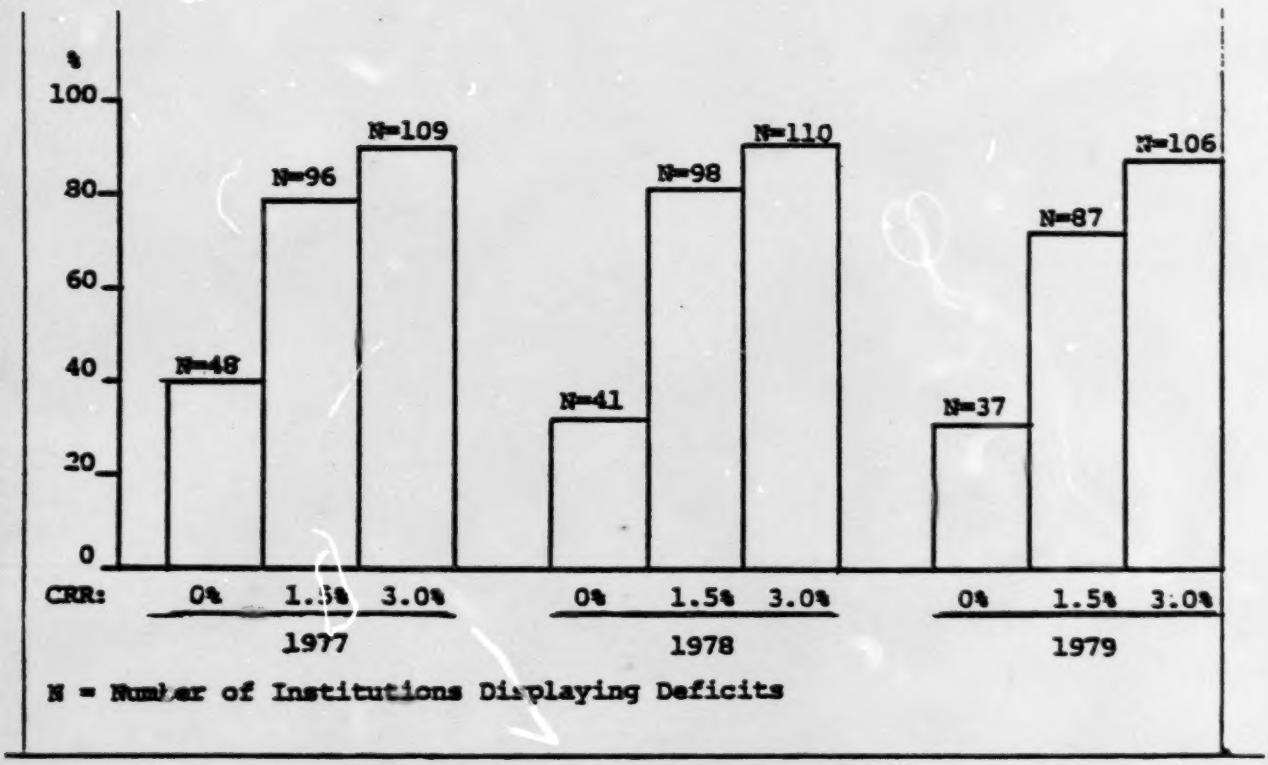
Annual CRR Charge = 1.5% (or 3.0%) of investment in plant assets.

We consider the 1.5-3.0 percent range to be a reasonable, if understated, target. Eventually a formula needs to be developed incorporating replacement costs of the plant and equipment assets in question.

Graph 1 shows what happens to our institutional sample when we apply the CRR charge. The number of deficit institutions doubles (or more than doubles) in each of the three years when we use the 1.5 percent charge.

Graph 1

Effect of CRR Charge on Frequency of Deficits, 1977-1979
121 Institution Sample



The graph informs us that in 1979, 37 institutions ran "deficits" in their current fund, using traditional accounting methodologies. If a CRR charge of 1.5% had been applied, another 50 institutions would be showing deficits. If a 3.0% CRR were used, 106 institutions would be "in the red;" only 15, or slightly over ten percent, can be considered "in surplus" utilizing our approach to measuring financial condition.

A corollary issue is how to measure the extent of deferred maintenance. We offer the Deferred Maintenance Proxy as a cost measurement, and the Deferred Maintenance Ratio as a useful financial indicator. The calculations for each follow.

Sample Calculation of Deferred Maintenance Proxy

	CRR Charge (formula amount)	$500,000
minus	Actual Renewal & Replacements Expenditures	200,000
equals	Deferred Maintenance Proxy	$300,000

The Deferred Maintenance Proxy represents the dollar amount of deferred expenditures for capital renewal and replacement; in this illustration the institution deferred $300,000 of necessary maintenance (as defined by the formula). The size of the CRR charge and the Proxy will vary among institutions. We therefore develop the Deferred Maintenance Ratio (DMR) to provide a better indicator of inter-institutional comparisons.

Sample Calculation of Deferred Maintenance Ratio

	Deferred Maintenance Proxy	$300,000
divided by	CRR Charge	500,000
equals	Deferred Maintenance Ratio (DMR)	.6

The DMR expresses the percentage of necessary maintenance not covered by actual expenditures, in this case sixty percent of the formula CRR charge. Both the Proxy and the DMR can be calculated regardless of the specific formula used for the CRR charge.

Table 1 displays the aggregate Proxies and DMR's for all 121 sample institutions. Even at the modest 1.5 percent CRR charge, the lowest DMR for the three years is 71 percent.

Table 1

Aggregate Deferred Maintenance Proxies and Deferred Maintenance Ratios
121 Institution Sample, 1977-1979

	1.5% CRR		3.0% CRR	
	Proxy ($'000's)	DMR (%)	Proxy ($'000's)	DMR (%)
1979	33,482	71	82,204	85
1978	33,361	77	78,981	88
1977	31,512	77	79,318	88

While the nature of our sample does not allow us to project our findings to the industry with statistical precision, we offer the approximations in Table 2. The investment in plant assets figures are 1980 estimates based on recent NCES data. We apply the 1.5 and 3.0 percent CRR charges to these estimates, and then assume two different DMR's--80 and 60 percent. Using the 1.5 percent CRR charge and the 60 percent DMR assumption, for example, we estimate the 1980 deferred maintenance for the "All Institutions" category to be $756,000,000. This increases to $2,112,000,000 when the CRR charge increases to three percent of investment in plant assets.

Table 2

Deferred Maintenance Estimate
All Institutions and the Independent Sector

Items	All Institutions	Independents
Investment in Plant Assets	$84,000,000,000	$26,000,000,000
1.5% CRR charge	1,260,000,000	390,000,000
80% DMR, annual requirement	1,008,000,000	312,000,000
60% DMR, annual requirement	756,000,000	234,000,000
3.0% CRR charge	3,520,000,000	720,000,000
80% DMR, annual requirement	2,816,000,000	576,000,000
60% DMR, annual requirement	2,112,000,000	432,000,000

These figures are alarming, even if they are only hypothetical. But when we also consider the backlog of maintenance projects that have accumulated over the years, the capital requirements for the industry become staggering. Nor have we put a price tag on the new equipment and library acquisitions necessary to bring our institutions up-to-date, not to mention retro-fitting for handicapped students and energy-saving renovations.

If the higher education industry expects to receive the support required to meet its capital needs, it must begin by articulating the problem. The Capital Charge provides a realistic approach to the issue, an approach that we hope industry analysts will pursue. The Deferred Maintenance Proxy and DMR offer in the deferred maintenance area the kind of indicators necessary in all areas of capital spending (or non-spending, as is clearly the case). Further development and refinement of these tools, and their application in financial analysis, are first steps toward coming to terms with the capital issue in higher education.

Recommendations

The following recommendations come directly from the text of Hang-Gliding. That study emphasizes two aspects of higher education finance: the importance as well as the widespread inadequacy of funding for certain capital investments, and the lack of clarity and detail in the financial reporting requirements with respect to certain types of capital investments. This presentation attempts to summarize the larger study; we hope these recommendations follow clearly from this shortened version.

To higher education institutions generally and to those in the Independent sector in particular:

We urge them to develop as quickly as possible a consensus on how to report within the framework of the formal financial audit statements on the scope of capital deterioration.

To governing boards:

We encourage them to make a careful study of the capital renewal and replacement needs of your institutions, and to assess the adequacy of annual budget allocations for new equipment and library and laboratory acquisitions.

We strongly recommend that they consider the formal introduction of a CRR Charge or a Capital Charge policy.

To all those concerned about a Capital Charge policy:

We urge them to think of a phasing-in procedure. Our estimates suggest a minimum of three to five years must be allowed, and perhaps more for institutions with very high DMR's and large backlogs of renewal projects.

To the federal and state governments:

We recommend that they consider how best to make available to all of higher education CRR funds at low interest cost.

To the National Association of College and University Business Officers:

We encourage NACUBO to take the lead, in cooperation with the Association of Governing Boards and others in helping Independent Higher Education--as well as institutions in the public sector--implement a mandatory minimum CRR charge. We believe that such a charge should be fully funded and set up in specifically designated reserves.

TECHNIQUES FOR MEASURING EDUCATIONAL FINANCIAL RESOURCE DISPARITIES

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Continuing concern with public school finance issues, intensified by court focus on the distribution of resources, contributed to the legislative requirement passed in 1978 directing the National Center for Education Statistics to prepare biennially composite statistical profiles of the distribution of resources for elementary and secondary education among the states and among school districts of each state. The language of the legislation indicates the Congressional motivation and intent:

> "(2) (A) The National Center shall publish . . . a composite profile of each state showing the degree to which each has achieved equalization of resources for elementary and secondary education among the school districts within the state. A summary of these profiles shall show this equalization among the states.
>
> "(B) In compiling the profiles required by this paragraph, the National Center shall list the degree of equalization both within and among the states according to the following standards:
>
> "(i) the disparity in expenditures among school districts;
> "(ii) the disparity from wealth neutrality; and
> "(iii) such other measures as the National Center considers appropriate, including a consideration of price differentials and pupil-teacher ratios."

The study discussed here is the first response to the legislative directive. While it offers considerable discussion and extensive evidence related to distributional issues the initial report will be only a first step towards meeting the full extent of the law. Many more issues have been raised than resolved; data analyses offer statistical evidence in support of known financing characteristics but also uncover unexplainable departures from expected patterns.

The responsibility assigned to the Center is of two distinct types: first, to select (or, if necessary, establish) statistical measures that portray inequalities in the distribution of resources and offer the means of showing progress toward some standard of equalization; second, to apply the selected measures to uniform data from all States. The result should be profiles showing State financing and resource distribution patterns in ways that permit examination of disparities both among and within States.

The legislation contributed to several aspects of the analysis plan. The directive to provide composite profiles was interpreted as requiring a multivariate approach to the study of the issues. Statistics used in earlier reports and other studies were not adequate for such a charge, which necessitated application of distributional measures capable of comparing such diverse quantities as property values and classroom teachers, or expenditures and tax rates. Numerous measures were tested against data to ascertain their usefulness in studying the problem of resource distribution.

The analysis also required extensive data manipulation, conducted using data bases assembled from several sources. The findings are of course limited by the nature and scope of the data. The tasks of identifying necessary data elements and the measurement and institutional problems that impede efforts at standardization and uniformity were themselves major activities not addressed here.

The responsibility given to the Center suggested that at least four commonly discussed properties of measures of inequality were important to the present study:[1/]

1/The discussion of criteria has been drawn almost entirely from an article by Paul D. Allison, "Measures of Inequality," American Sociological Review 43 (December 1978), pp. 865-880.

1. At the very least, the measure of inequality should equal zero when all school systems have the same resources per pupil (e.g., core expenditure) and should have a positive value when two or more school systems differ.
2. The measure should be scale invariant, which requires that multiplying every system's expenditure by a constant leaves the degree of inequality unchanged. This property means that it is unnecessary to adjust for inflation when comparing expenditure inequality in 1976-77 with that seven years earlier. Scale invariance also permits the comparison of distributions of expenditure with distributions of classroom teachers per 1,000 pupils and other distributions where the unit of measure is not dollars. Finally, scale invariant measures do change when a positive constant is added to each element of the distribution; specifically, the measure declines in value. -For example, if $1,000 is added to core expenditure in each school system a scale invariant measure will indicate that inequality has declined. This property is particularly attractive in the case of expenditure comparisons, where differences among high spending systems have less notable impact on resources than do differences among lower spending systems.
3. The measure of inequality ought to decrease whenever money is transferred from a richer system to a poorer system, regardless of how rich or how poor or the amount of money transferred. This is the principle of transfers.
4. Decomposition. It often is desirable to decompose the inequality in a population into inequality between groups and inequality within groups. For example, in the present study it is important to decompose the inequality of system core expenditure per pupil for the United States into inequality among States and inequality within States, or into inequality among school systems in given size categories and inequality within system size categories.

The application of these criteria to a variety of measures of inequality resulted in the immediate determination that some measures were unsuitable, at least for any detailed analysis. Many potential measures are not scale invariant, and were ruled out. Measures unsatisfactory on this basis include:

a. Range. Difference between highest and lowest observation.

b. Interquartile range. P(75) - P(25), where P(75) and P(25) are the 75th and 25th percentiles, and all other restricted ranges.

c. Variance. Mean squared deviation of observations from the mean.

Application of the principle of transfers eliminates a number of other possible measures, including:

d. Range ratio. {P(95) - P(5)}/P(5) and all similar measures involving ratios of a restricted range to an arbitrarily chosen percentile.

e. Relative mean deviation. Mean absolute deviation from the mean.

f. Standard deviation or variance of the logarithms of the observations. This measure responds well to transfers at lower expenditure levels. But at high expenditure levels (greater than 2.718 times the geometric mean), the variance of logarithms actually decreases with a transfer from a (relatively) poorer to a richer system.

The analyses of dispersion used in the study rest on three measures which satisfy most of the criteria just mentioned: the coefficient of variation, the Gini coefficient, and the Theil coefficient. The properties of these statistics are important to the interpretation of results.

a. Coefficient of variation. The standard deviation divided by the mean:

$$V = \frac{\sigma}{\mu}$$

The coefficient of variation has an upper bound of $\sqrt{n-1}$, which is reached when one individual (system) has everything and the others nothing. V is equally sensitive to transfers among districts at

all resource levels. Thus a transfer of $100 per pupil from a $600 per pupil expenditure system to a $400 per pupil expenditure system has the same impact as a transfer of $100 per pupil from a $1,600 system to a $1,400 system.

b. Gini coefficient. This comparison of joint cumulative distributions of a resource and its recipients offers a measure of dispersion divided by twice the mean:

$$G = \frac{\frac{1}{n^2} \sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|}{2\mu}$$

The index is usually considered in relation to the Lorenz curve, which portrays for each rank of a population the proportion at that rank or below and also the proportion of the total amount of the good being distributed that is earned by recipients at that rank or below. The Gini coefficient is equal to twice the area between the Lorenz curve and the line of perfect equality.

The Gini coefficient cannot be decomposed and thus does not possess one of the desirable characteristics mentioned earlier. The Gini coefficient, although it is currently a popular measure of inequality, has another limitation. For a typically shaped distribution it tends to be more sensitive to transfers around the middle of the distribution and less sensitive to equal transfers among the very poor or the very rich. Thus if the distribution of system per pupil expenditure is unimodal with a median of about $1,500, a transfer of $100 per pupil from a $1,600 system to a $1,400 system has more of an effect of the Gini coefficient than does a $100 transfer from a $600 system to a $400 system.

c. Theil coefficient. The measure is:

$$T = \frac{1}{n} \sum_{i=1}^{n} \left(\frac{x_i}{\mu}\right) \log\left(\frac{x_i}{\mu}\right)$$

which reduces to a more computationally convenient formula and reveals that T is a measure of dispersion divided by the mean:

$$T = \frac{\frac{1}{n} \sum_{i=1}^{n} x_i \log x_i - \mu \log \mu}{\mu}$$

When $x_i = 0$, $x_i \log x_i$ is also defined to be 0. Theil's measure has an upper bound of natural log n, which is reached when one individual has everything and everyone else has nothing. Merely increasing or decreasing the number of pupils or school systems will not change the value unless such a change affects the distribution of resources.

The coefficient of variation, as noted above, is equally sensitive to transfers at all income levels. The change in T, however, depends on the ratio of the affected per pupil expenditure. As a consequence, transferring $100 per pupil from a $600 per pupil expenditure system to a $400 per pupil expenditure system has the same effect as the transfer of $100 per pupil from an $1,800 system to a $1,200 system. (Note: 600/400 = 1800/1200). The lower the level of expenditure, the more sensitive T is to transfers.

The Theil coefficient can be decomposed to show the inequality of a distribution among groups and inequality within groups. For example, suppose the population can be divided into J mutually exclusive and exhaustive groups (such as States). It is possible to decompose the inequality in per pupil expenditures into inequality among States and inequality within States. For each state we know $\bar{X}_j$ the mean per pupil expenditure of the jth state, the proportion of students, P_j, in state j, and T_j and V_j, the inequality measures

for each State.

The decomposition of Theil's index is

$$T = \sum_{j=1}^{J} \left(\frac{p_j \bar{X}_j}{\bar{X}}\right) \log\left(\frac{\bar{X}_j}{\bar{X}}\right) + \sum_{j=1}^{J} \left(\frac{p_j \bar{X}_j}{\bar{X}}\right) T_j$$

where $\bar{X} = \sum_{j=1}^{J} p_j \bar{X}_j$ is the grand (national) per pupil expenditure. The first term on the right-hand side is the among States component. It is equivalent to the value of T that would be obtained if everyone in each State received the mean expenditure for that State. The second term on the right-hand side is a weighted average of the within-group T values.

Results of the Analysis

It is important that the results of this analysis be presented in a form understandable to an audience of policy makers who may be knowledgeable of the analytical techniques utilized but whose primary concern remains the findings and their meaning. For illustrative purposes, a few of the findings are shown here.

The dispersion measures for district averages and for district averages weighted by enrollments are shown by State for 1976-77 in table 1. Values for the three dispersion statistics were shown simultaneously to permit comparisons across the different statistics. Furthermore, both the coefficient of variation and the Gini coefficient are relatively well known among the audience for this report, while this is the first major application of the Theil coefficient to school finance issues.

Because the Theil coefficient is preferable to the two measures on at least two counts, its tendency to weight changes at the lower end of the distribution scale as more significant than changes at the upper end, and its decomposability, it has been used to show many characteristics of the data assembled for the study.

Two illustrations of its use are included here.

The Theil coefficient was used to compare statistical measures of within-State dispersions on core expenditures and teachers. A graphic display of these relationships suggests some of the reasons for resource differences. Chart 1 shows the national average within-State dispersion used to partition the States into four groups, based on their relation to the national average on each of the two resource distributions. Seventeen States (those in the lower left-hand corner of the chart) had both expenditure and staffing dispersions less than the national average of within State dispersions; in other words, this group showed greater equalization than the national average on both resource measures. At the other extreme seven States (those in the upper right-hand corner) exceeded the national average in dispersions for both resource measures. Remaining States exceeded the national average on one measure and were less than average on the other.

This simultaneous display of dispersion for alternative measures of resources suggested both the complexity of conditions confronting individual States and the necessity of interpreting particular findings within a general context. States with large teacher dispersion but comparatively small expenditure dispersions are in many cases those with areas of low population density (for example, North Dakota, Colorado, Nebraska, Arizona) where to offer complete educational programs may require proportionately more staff. In the complementary case, large expenditure dispersions in States with small teacher dispersions might signal the presence of States that contain some areas with higher expenditure than others (perhaps because of metropolitan centers). Pennsylvania, Ohio, Tennessee, and Massachusetts offer examples of this phenomenon.

Decomposition of the Theil coefficient was used to examine hypotheses regarding several reasons for resource disparities. Variations in the levels

of educational resources supplied to students have been attributable to differences in student needs, input prices or program costs. Earlier comparisons of expenditure and teacher variations suggested that some uncontrollable costs differences may result from sparsity of population. Other demographic features that have been cited as possible explanatory factors include school system size, metropolitan status, and cost of living differentials. Educational needs of particular student groups introduce additional, justifiable reasons for resource variations. Each of these characteristics was examined using the impact of the Theil coefficient.

Metropolitan status has been cited as a factor that could affect both per pupil costs of instruction and also the statistical analysis because of the considerable variation in the sizes of groups being studied. Theil coefficients for each State were decomposed, in this case for the variation within and among the three designated categories. The average expenditures by category, the value of the Theil coefficient, and the percent of the total variation explained by among and within group intervals is shown in Table 2 . The results show that only in the case of three States--Delaware, Kentucky, and Tennessee--is more of the variation explainable as being among groups than within. Thus only in those three States would a metropolitan classification be of explanatory value in explaining expenditure disparity. The substantial proportion of the among group variation for these three States is particularly surprising in view of the fact that the classification makes so little difference for most of the other States. In two States, Illinois and Georgia, the variation explained within groups is about equal to that explained by the group classification.

Conclusion

NCES regards its presentation of these and many analytical results as introductory and exploratory. Whether we succeed in our attempts to draw upon results of a technically sophisticated analysis to provide intelligible results

to a diverse audience remains to be seen. If we are successful, we will have made significant progress in keeping with our fundamental mission. For purposes of this session, I hope the techniques and approaches summarized here will prove to have wider application than those shown here to school finance issues.

Chart I
Comparison of Teacher and Expenditure Disparity

The 17 States in the shaded area had both expenditure and teacher disparities that were below the National average within-State disparity.

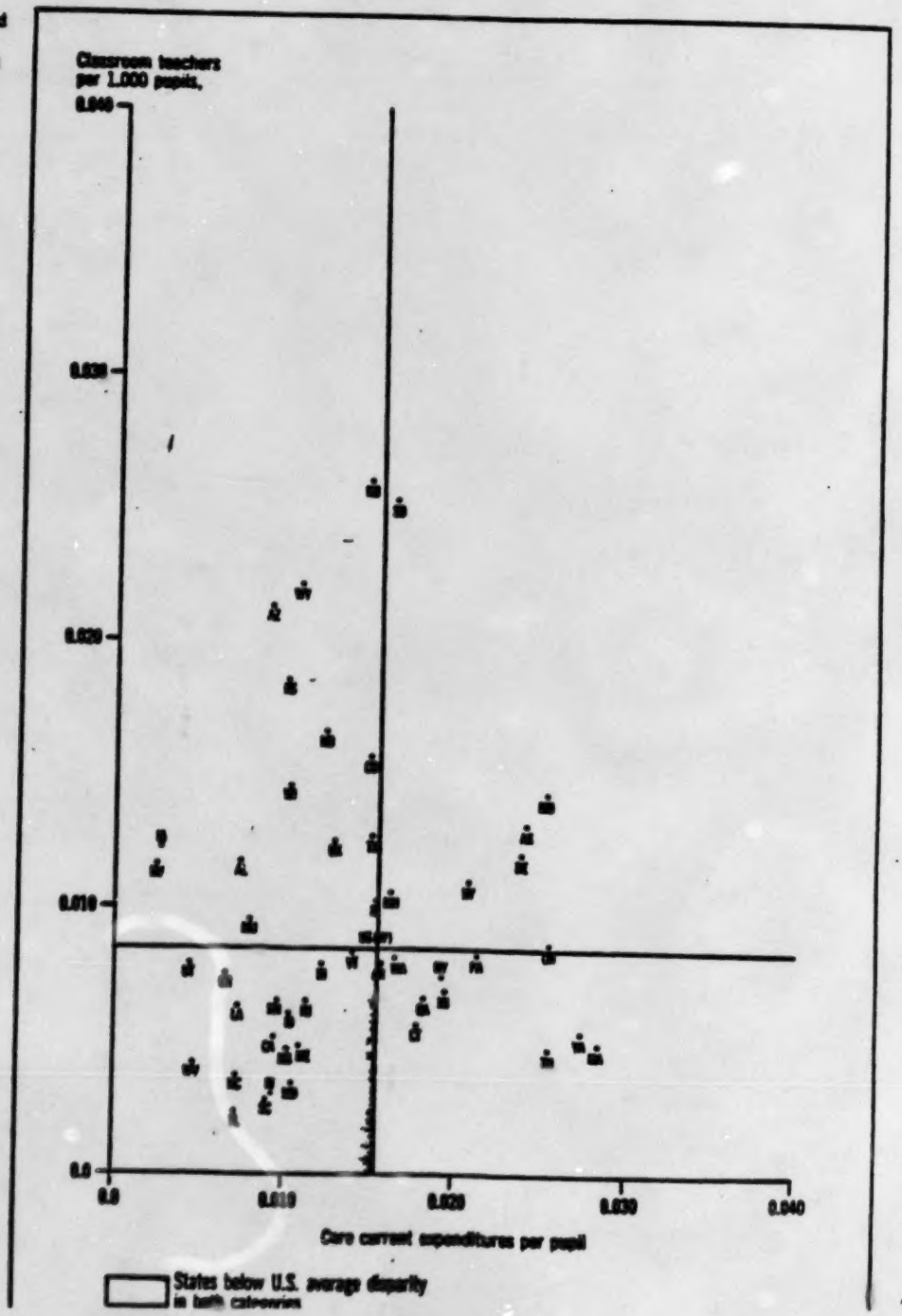

Table 1

CORE CURRENT EDUCATION EXPENDITURE PER PUPIL BY METROPOLITAN STATUS OF SCHOOL SYSTEM, BY STATE: 1976-77 (INCLUDES EXPENDITURES FOR PUPILS IN SCHOOL DISTRICTS WITH GRADES 1-12)

STATE OR OTHER AREA	AVERAGE (MEAN) EXPENDITURE PER PUPIL BY METROPOLITAN STATUS				THEIL'S COEFFICIENT		
	ALL SCHOOL SYSTEMS	CENTRAL CITY SYSTEMS IN SMSA'S	SYSTEMS IN SMSA'S OUTSIDE CENTRAL CITIES	SYSTEMS OUTSIDE SMSA'S	VALUE OF COEFFICIENT	PERCENT OF AMONG INTERVALS	PERCENT OF WITHIN INTERVALS
ALABAMA	$ 757	$ 826	$ 740	$ 723	7.3	77.6	22.4
ALASKA	2496	0	0	2496	24.0	100.0	0.0
ARIZONA	1214	1216	1192	1234	0.0	98.9	1.1
ARKANSAS	812	974	782	787	15.8	80.5	19.5
CALIFORNIA	1522	1583	1498	1358	9.4	91.3	8.7
COLORADO	1439	1612	1405	1364	14.7	84.5	15.5
CONNECTICUT	1444	1519	1448	1291	16.9	92.1	7.9
DELAWARE	1361	2098	1385	1096	23.8	10.3	89.7
DIST OF COLUMBIA	1914	1914	0	0	0.0	0.0	0.0
FLORIDA	1256	1180	1351	1171	7.1	65.4	34.6
GEORGIA	952	1187	908	943	18.3	50.1	49.9
HAWAII	1559	1559	0	0	0.0	0.0	0.0
IDAHO	942	1074	774	934	10.3	80.7	19.3
ILLINOIS	1364	1533	1273	1150	15.4	50.9	49.1
INDIANA	1049	1197	967	981	12.2	60.2	39.8
IOWA	1377	1412	1351	1370	2.6	96.0	4.0
KANSAS	1229	1307	1189	1227	10.0	95.6	4.4
KENTUCKY	849	1130	813	795	20.8	23.4	76.6
LOUISIANA	946	1031	874	914	7.2	70.8	29.2
MAINE	1036	1091	1169	1011	10.9	89.0	11.0
MARYLAND	1544	1460	1623	1347	10.5	75.2	24.8
MASSACHUSETTS	1656	1913	1607	1371	28.4	81.0	19.0
MICHIGAN	1352	1520	1384	1151	19.5	75.3	24.7
MINNESOTA	1363	1763	1335	1255	16.3	53.3	46.7
MISSISSIPPI	811	1031	744	795	10.2	67.3	32.7
MISSOURI	1180	1279	1143	946	25.2	70.4	29.7
MONTANA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
NEBRASKA	1356	1373	1148	1397	14.8	87.1	12.9
NEVADA	1216	1193	1195	1305	2.4	74.3	25.7
NEW HAMPSHIRE	1049	1081	966	1051	9.8	95.7	4.3
NEW JERSEY	1609	1545	1641	1588	11.3	97.5	2.5
NEW MEXICO	1186	1128	0	1212	7.9	93.3	6.7
NEW YORK	2210	2408	2195	1817	19.3	76.5	23.5
NORTH CAROLINA	1003	1135	971	963	7.2	65.1	34.9
NORTH DAKOTA	1207	1422	1167	1192	12.3	90.3	9.7
OHIO	1199	1447	1176	996	25.4	63.6	36.4
OKLAHOMA	936	961	875	949	12.9	95.1	4.9
OREGON	1555	1714	1518	1402	6.5	70.5	29.5
PENNSYLVANIA	1376	1691	1346	1161	21.3	60.1	39.9
RHODE ISLAND	1444	1632	1339	1454	9.3	56.6	43.4
SOUTH CAROLINA	945	1092	936	829	9.0	76.6	23.4
SOUTH DAKOTA	1058	1087	960	1058	16.2	98.9	1.1
TENNESSEE	881	1129	876	750	25.4	31.8	68.2
TEXAS	1046	1064	989	1083	15.1	95.5	4.5
UTAH	1052	1151	1009	1100	6.4	67.7	32.3
VERMONT	1316	0	0	131	14.0	100.0	0.0
VIRGINIA	1122	1189	1260	951	27.3	69.7	30.3
WASHINGTON	1363	1656	1300	1297	16.5	70.7	29.3
WEST VIRGINIA	1034	1162	1120	998	4.7	63.8	36.3
WISCONSIN	1449	1633	1454	1337	10.2	65.3	34.7
PUERTO RICO	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Table 2

SELECTED MEASURES OF DISPERSION OF CORE CURRENT EDUCATION EXPENDITURE FOR SCHOOL SYSTEMS BY STATE: 1976-77 (INCLUDES ONLY PUPILS IN SCHOOL SYSTEMS WITH GRADES 1-12)

STATE OR OTHER AREA	SCHOOL SYSTEM AVERAGES				SCHOOL SYSTEM AVERAGES WEIGHTED BY ENROLLMENT			
	MEAN	COEFFICIENT OF VARIATION (X100)	GINI COEFFICIENT (X100)	THEIL COEFFICIENT (X1000)	MEAN	COEFFICIENT OF VARIATION (X100)	GINI COEFFICIENT (X100)	THEIL COEFFICIENT (X1000)
ALABAMA	743.	17.1	4.7	7.1	757.	12.2	6.8	7.3
ALASKA	3230.	25.9	14.3	11.5	2496.	23.0	10.9	24.0
ARIZONA	1314.	24.9	12.8	2[illegible].3	1214.	14.0	6.4	9.0
ARKANSAS	805.	19.8	10.5	18.3	912.	18.1	10.0	15.8
CALIFORNIA	1529.	23.4	10.6	23.2	1522.	14.0	7.1	9.4
COLORADO	1463.	30.8	15.0	42.7	1439.	17.6	9.4	14.7
CONNECTICUT	1378.	18.0	9.9	15.7	1444.	18.6	10.3	16.9
DELAWARE	1296.	19.8	10.5	14.6	1361.	22.6	11.7	23.8
DIST OF COLUMBIA	1914.	0.0	0.0	0.0	1914.	0.0	0.0	0.0
FLORIDA	1196.	13.2	6.7	8.2	1256.	12.1	6.7	7.1
GEORGIA	954.	16.9	8.9	13.3	952.	19.4	10.8	18.3
HAWAII	1559.	0.0	0.0	0.0	1559.	0.0	0.0	0.0
IDAHO	1060.	22.9	11.6	23.6	942.	14.7	7.7	10.3
ILLINOIS	1190.	16.4	8.5	12.6	1364.	17.4	9.7	15.4
INDIANA	967.	15.3	8.0	11.1	1049.	15.7	8.8	12.2
IOWA	1402.	9.8	5.3	4.7	1377.	7.3	4.0	2.6
KANSAS	1317.	22.3	11.7	23.1	1229.	14.4	7.4	10.0
KENTUCKY	786.	13.1	6.7	8.1	849.	21.0	11.1	20.8
LOUISIANA	939.	13.5	7.5	9.0	946.	12.0	6.8	7.2
MAINE	1060.	16.9	9.2	16.1	1036.	15.0	8.2	10.9
MARYLAND	1483.	13.5	7.2	8.7	1544.	14.7	8.0	10.5
MASSACHUSETTS	1525.	18.8	9.8	16.7	1656.	24.9	12.5	28.4
MICHIGAN	1211.	19.0	9.6	16.5	1352.	20.5	10.6	19.5
MINNESOTA	1306.	14.7	7.6	10.1	1363.	18.8	9.9	16.3
MISSISSIPPI	798.	12.2	6.8	7.4	811.	14.6	8.0	10.2
MISSOURI	991.	20.5	9.8	18.5	1100.	23.4	12.2	25.2
MONTANA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
NEBRASKA	1609.	27.2	14.5	34.4	1356.	18.1	8.7	14.8
NEVADA	1422.	24.5	10.7	25.6	1216.	7.5	2.0	2.4
NEW HAMPSHIRE	1041.	16.2	8.9	12.8	1049.	13.9	7.7	9.6
NEW JERSEY	1631.	16.0	8.9	12.5	1609.	15.1	8.4	11.3
NEW MEXICO	1437.	24.1	13.8	27.2	1186.	13.2	5.9	7.9
NEW YORK	2004.	27.7	13.5	33.3	2210.	19.8	10.6	19.3
NORTH CAROLINA	1004.	11.4	6.1	6.3	1003.	12.1	6.6	7.2
NORTH DAKOTA	1276.	19.8	10.3	18.0	1207.	16.2	8.3	12.3
OHIO	1080.	23.5	12.2	27.9	1199.	22.9	12.8	25.4
OKLAHOMA	1018.	27.5	13.8	32.6	936.	17.2	7.9	12.9
OREGON	1606.	18.1	9.5	15.5	1594.	11.4	6.4	6.5
PENNSYLVANIA	1284.	18.5	9.7	16.1	1376.	20.9	11.7	21.3
RHODE ISLAND	1444.	17.9	8.9	14.7	1444.	13.6	7.7	9.3
SOUTH CAROLINA	819.	13.1	7.1	8.4	845.	13.6	7.4	9.0
SOUTH DAKOTA	1158.	19.9	10.0	18.3	1058.	18.0	9.1	16.2
TENNESSEE	767.	20.4	10.0	19.0	881.	22.7	12.8	25.4
TEXAS	1146.	31.4	15.6	43.0	1046.	18.1	9.3	15.1
UTAH	1100.	20.4	10.2	19.2	1052.	9.7	4.7	4.4
VERMONT	1244.	18.6	10.6	17.1	1316.	16.5	9.2	14.0
VIRGINIA	1029.	21.9	9.9	20.6	1122.	24.3	12.7	27.3
WASHINGTON	1401.	30.0	14.0	37.1	1361.	18.4	10.2	16.5
WEST VIRGINIA	1021.	10.3	5.7	5.2	1014.	9.7	5.5	4.7
WISCONSIN	1373.	12.2	6.8	7.3	1449.	14.4	8.1	10.2
WYOMING	1560.	16.5	9.2	13.3	1426.	15.0	8.1	10.7
PUERTO RICO	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

A FRAMEWORK OF THE RELATIONSHIP BETWEEN INSTITUTIONAL FINANCIAL CONDITION AND STUDENT ACCESS AND CHOICE

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Many people fear that the 80's will be a time for decreasing enrollment and rising costs. As a result, the financial conditions of many institutions may deteriorate and institutional administrators may look to the government for financial assistance.

The principal goal, in postsecondary education, of the U.S. Department of Education is to provide student access and choice, particularly for poor and minority students. The Federal government should not provide general institutional support for most postsecondary institutions. The major responsibility for general institutional support of public institutions is vested in State and local governments. The major institutional support of private institutions is provided by tuition, endowments, and gifts. If student access to or choice of educational service is threatened then the Department of Education may provide assistance.

The purpose of this study is to develop a framework that describes the relationship between institutional financial condition and student access and choice of educational services.

Study Activities

The study consists of three activities. First, devise a preliminary framework. This framework describes the institutional financial condition, the responses that effect educational services provided at an institution, and the ability of the student to attain educational services from alternative institutions. This framework describes the elements, identifies the measures, and suggests hypotheses. This preliminary framework was initially based on the ACE/NACUBO self-study workbook for describing the financial condition of a private institution. The preliminary framework was then modified and extended after a few pilot site visits that were part of this study.

Second, clarify by adding more elements to the framework, by further specifying the elements in the framework, and by proposing hypothetical relationship among the elements in the framework. This framework clarification was attained by interviewing administrators at thirty-six institutions.

Third, the hypothesized relationships were examined using available data. The American Institutes for Research developed a longitudinal file for 3600 institutions from the National Center for Educational Statistics (NCES) surveys between the years 1975 and 1978. A Higher Education Panel (HEP) survey was used to obtain financial data not available from the NCES financial surveys. The NCES longitudinal data file and HEP data file are used to examine hypothetical relationships.

The study will culminate in a final report. That report should be available by the next conference in October 1981. At this point the preliminary framework has been developed which is discussed in the next section.

Preliminary Framework

The framework as it has currently evolved consists of an institutional response to financial distress and the effect of these aggregate responses on students' access to educational services in a market area.

The institutional response or framework consists of the financial stress and three ways of responding: (1) choose a strategy that doesn't reduce the financial value of the institution; and (2) choose a strategy that reduces buffers to future financial stress; and (3) choose a strategy that reduces educational services to students.

Under financial stress factors are included expenditure increases, revenue decreases, and decreasing flexibility. Expenditures that may increase are faculty and staff salaries, building maintenance, utilities and student scholarships. These increasing costs are particularly a problem if the institution is also facing revenue declines such as those due to enrollment declines; declines in external support through gifts, appropriations and grant contract revenue; and decline of endowment value. The ability to respond to an "expenditure-revenue" squeeze will depend on the flexibility of the institution in meeting cost demands. The flexibility of the financial administrator in responding to financial stress may be curtailed. The administrator may be forced to expend institutional funds to reduce current debt or to comply with regulations, also the institution may be limited in the amount of revenue that can be obtained through tuition, gifts, or appropriations.

The financial administrator will probably first choose a strategy that will not reduce the book value of the institution or the services provided by the institution. This strategy consists of reducing nonessential expenditures, increasing revenue, or decreasing flexibility. The most likely choice is to increase revenue by increasing the enrollment through recruitment or retention or appealing for funds through gifts or appropriations. The institution may reduce its future flexibility by increasing its financial obligation through contracts and grants.

More serious are cutbacks, for they potentially or do affect services provided to students. Cutbacks involve: (1) reduction in reserves, or buffer, (2) freezes or reduction in needed growth and (3) service cutbacks. Reserves can be reduced by reducing the current fund or quasi-endowments or by selling off investment property. These reductions do not necessarily affect student services but they do reduce the ability of the institution to respond to future financial stress. Freezing or reducing growth of supplies, salaries and building maintenance does effect the quality of services provided to students. Finally, the institution may directly reduce educational service by cutting back on administration, student services, and academic program offerings.

Financial stress on an institution may result in service cutbacks to students. The characteristic patterns that institutions use in responding to financial distress differ by institutional characteristics, competitive environment, or institutional mission. These are interacting factors.

Services that are reduced or are threatened in the student market area is the key issue. Educational services that can be reduced include those not in demand, those that another institution could provide, and those that cannot otherwise be obtained by the student. The Department of Education is primarily concerned with reduced educational services that the student demands and cannot readily obtain.

These service reductions need to be considered in regard to student types who may vary in their demands for educational services. Of particular interest is the student who doesn't have the resources to obtain the educational service he or she desires.

Most of the framework can be stated in measurable terms and data or proxies are currently available for some of the elements. This measurable framework is a necessary step in devising relevant and empirical hypotheses.

FINANCIAL ASSESSMENT IN INSTITUTIONAL MANAGEMENT AND PUBLIC POLICY ANALYSIS:

THE CANADIAN EXPERIENCE

Jeffrey Holmes
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This talk will indicate not so much how financial assessment is used to measure financial viability and to help determine public policy but why it isn't. For reasons of history, demography and institutional size, finance data has played a less important role in Canada than in the United States--and is likely to continue to do so. This is not to say that finance data is ignored. Indeed, as Canada's public deficit grows, it is consulted with increasing frequency at government and institution levels. But in conflicts between data and politics (national, provincial or institutional) it is still unwise to bet on the data.

Yes Virginia, there are differences between the United States and Canada.

1. The Americans think of everything (well almost everything) sooner than Canadians do — an average of 7.3 years sooner as regards higher education. This includes computers and their daily diet of data.

2. American higher education is about 10 times bigger than Canadian higher education. This provides economics of scale which justify the creation of data-producing units. Some Canadian administrators who want to count students or revenues have only to look out of the window or in the wall safe.

3. The U.S. federal government, when it encourages institutions to be good through Title grants, likes to get evidence of compliance. The Canadian federal and provincial governments have been much more trusting. Also, they don't make Title grants.

4. The average Canadian institution is smaller and less complex than the average American institution. It does less research. Financial control is easier, more personal. Sometimes even more political. Data, especially finance data, may get in the way of decisions.

5. Canadians are not as numerate as Americans. (Is anyone?)

These and other differences will surface later (sometimes belly up). But first let me tell you:

*Views expressed are those of the author, not of Statistics Canada.

Rather more about Canadian higher education than you wish to know.

In the beginning was Laval, named by the French Canadians after a great bishop. Its roots go deeper than those of Harvard and Yale. (The Americans didn't think of everything first.) Then came the King's colleges, founded by English Canadians, many of whom were Americans who had fled the Revolution and refurbished the monarchy in these seats of learning. The one now in Halifax is convinced that it is older than the one in Fredericton. (It is also convinced that Yale owes it millions of dollars.) Other King's colleges sprang up, even in places as far west as Toronto. But even further west, the Prairies universities followed the Land-Grant model in an agricultural setting. In the farthest west, British models prevailed, through the splendid Canadian practice of bifurcation. The University of British Columbia bifurcated from McGill and, later, Victoria bifurcated from U.B.C. Back east, bifurcation produced the Université de Montréal from Laval, as one outstanding example.

There were some 30 universities or university clusters in the mid-50s when Edward Sheffield (a predecessor of mine as director of the Education Statistics Division) galloped through Academe shouting "The students are coming! The students are coming!" About a dozen universities or campuses were added to help cope with the boom, and in the mid-1960s, two college systems sprang fully built from the heads of planners in Ontario and Quebec. The Demon Demography hit Canadian higher education even harder than he hit U.S. higher education, since the base of both students and professors was much smaller. There was a five-fold expansion of universities in the 15 years to 1970 plus the creation of whole community college systems to add to the scattered handful of non-university post-secondary institutions. Many universities started the boom as private institutions in fact, or partially in fact, as well as in name. By the mid-seventies, virtually all institutions were provincial, in finance as well as in fact. This was a major change for many of the original universities: although the 1867 British North America Act specified that "education, in and for the province," was a provincial jurisdiction, very few thought that this agreement covered the universities. The federal government had not hesitated to move into the post-secondary field for short periods when it thought fit, as in the provision of free university education for many returning World War II veterans, for example.

To federally finance or not to federally finance?

Federal support for universities assumed a more permanent character in the early 50s with the decision to pay 50 cents per capita of provincial population to the institutions. The money went through the national association of universities (the AUCC) except in the case of Quebec, which refused to allow this. The amount increased slowly to $2 per capita and then jumped overnight to $5 in 1966. But, in 1968, the federal government withdrew its direct support and decided to match, dollar for dollar, provincial spending on post-secondary. It did this in the form of tax point transfers and the decision led to several years of "the 50 cent dollar." This was great help for the post-secondary world in meeting the demand for places but another of my predecessors made an

early 70s "forecast" which projected higher education spending to swallow the Gross National Product by the early nineties. When the Deutsch task force met to look at the financing agreement, it had finance, not accessibility, as its top consideration in giving advice to the federal government. As a stop-gap, the government imposed a 15% annual increase limit to help it cope with escalating provincial spending and with growing inflation. Finally, in the mid-seventies, Finance Minister MacDonald brought in a new arrangement, whereby post-secondary financing was lumped with health and welfare transfers under Bill C-37, the Established Programmes Financing Act.

Meanwhile, forward in the Provinces.

The provinces, after many years of benign non-involvment with university financing, began to take an interest in the early 60s. The provincial grants committee replaced the tête-à-tête between provincial premier and university president which had been an accepted forum for many decisions on annual provincial contributions. Most provinces reaped both financial and political rewards from the change in federal financing in 1967; the amounts passed out by grants committees multiplied. So did the interest of the "ivy-covered taxpayer."

And in the hallowed halls of learning...

...they were too busy keeping pace with the demands of expansion to worry overmuch about financial assessments. In the mid-50s, most institutions survived reasonably well on private grants, investment income, student fees which covered some 30% of tuition costs, donated services by teaching clerics, and modest income from federal and provincial sources. The majority of Canadian universities were liberal arts colleges with a handful of graduate students. By the late 60s, course offerings, both graduate and undergraduate, had proliferated; student fees and investment income was falling steadily as a percentage of revenue; and the provincial government had become, overnight for most institutions the major single source of revenue; research grants, mostly from the federal government had increased spectacularly. Accountability was here to stay.

AUCC-CAUT-CAUBO cost study.

In the late 60s, three national university associations (institutions, professors, business officers) launched a study to see if a valid costing procedure could be developed for the new complexity of university accountability. The study aborted, but not before it had produced some interesting although uncomfirmed refutations of conventional wisdom. For example, the most expensive (net) year, undergraduate or graduate, was the third year undergraduate. But the politics of publishing the raw data (warts and all) proved too much for the CAUT, who foresaw politicians rampant clutching the study couchant on a field argent. The study was dropped but not before it inspired a gallant band of business officers (AAUBO) and a great national statistics agency to pursue the cost study dream in the quiet backwaters of the Atlantic provinces.

Atlantic Universities Financial Information System.

As Brobdingnag (U.S.A.) is to Gulliver (Canada) so Gulliver is to Lilliput (Atlantic Provinces):

How the cost study journeyed to Lilliput and what befell it there: a comi-tragedy in three parts, with sundry engagements, sallies, sieges, minings and countermings, alarums and excursions wherein all the problems of financial assessment are magnified as recounted by a petty protagonist.

The future of financial assessment.

IMPLICATIONS OF THE STUDIES ON THE

FINANCIAL CONDITION OF PUBLIC HIGHER EDUCATION

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For the first time in 1980 we have two parallel studies of the financial condition of public and independent higher education. The principal investigators John Minter and Howard Bowen are the same for both studies. Virginia Hodgkinson and I have been studying their reports and find that both sectors share common problems. I will try to describe what Minter and Bowen and others have concluded about the public sector. Later Virginia will discuss the independent sector.

Looking at the public and independent sector we both have further questions about the current state of capital investments, the cost of administration, the impact of student aid on enrollments, and the meaning of the test scores as applied to the different sectors.

In terms of access, enrollments in public colleges grew by about 42 percent over the past decade and now 8 out of 10 are in some type of public institution. Three overlapping groups each accounted for over half of the enrollment increase: minorities, women and students over age 24. Perhaps associated with the influx of new clientele, SAT scores have been going down for all high school graduates and for students attending public institutions. A question has arisen as to how appropriate it is to use SAT scores when comparing public and independent institutions. Most public colleges do not use them. Thus, we are somewhat concerned that comparisons between the public and independent sector on the basis of test scores may not be useful.

We also need to look more closely at student aid and its effect on enrollment patterns. Minority student enrollments grew rapidly during the 1970s and it seems highly likely that this had something to do with student aid, but most studies fail to establish a close linkage between enrollment changes and student aid for students from low income families. That is, attendance by students from low income families did not appear to have increased very substantially since the passage of the Higher Education Amendments of 1972. Why this seems to be the case needs further investigation.

How eager will public institutions be to increase enrollments during the decade of the 1980s. Among the Minter/Bowen panel institutions it is noted that the public research universities and land-grant colleges grew very slowly during the 1970s and seem to have reached full capacity some years ago. Even among the comprehensive colleges and universities, few institutions seem interested in further growth. Only the community colleges continue to seek large percentage increases in enrollment.

With respect to institutional financing, during the past two years, it appears that appropriations have kept pace with enrollments and inflation. However, over the decade, per student support seems to have fallen slightly behind inflation. Perhaps somewhat surprisingly, tuition revenue has maintained a fairly stable relationship with appropriations over the decade. In the early 1970s public college tuitions did rise more rapidly than inflation, but recently inflation has moved ahead faster than tuition. Expenditures for instruction in proportion to all other educational and general expenditures appear to be declining.

Minter and Bowen found many signs of deferred maintenance in human, physical and financial assets. For example, the AAUP reported that faculty salaries declined 20 percent in real dollars over the past decade. Minter/Bowen report that annual investments in physical assets, in constant dollars, were twice as high two decades ago as they are today. Much of the difference no doubt reflects the widespread perception that higher education enrollments would slow to a halt during the 1970s and that without increased enrollments there would be little need for new investments. Financial assets, endowments and other forms of income have also increased at a slower rate than inflation and enrollments.

One additional Minter/Bowen finding deserves mention. Among the subsectors the research universities are in the strongest financial condition, but the percentage gaining ground is very small. The comprehensive colleges and universities report increasing numbers of institutions in a weakening condition. There are similarities here with the Nate Dickmeyer findings in his analysis of HEGIS data. The community colleges are in the weakest condition, according to Minter/Bowen, but they are becoming stronger.

Where should we seek an explanation of the paradox of continued support but less being spent on teaching and maintenance. There seem to be two places to look: 1) new obligations such as the rising cost of accountability to governments and 2) rapid inflation in basic areas (eg, libraries, energy, equipment, etc.). Our overall assessment is that the public sector's current financial condition is fragile. The institutions seem to be coping but their fixed costs are going up, new obligations are being thrust upon them and expenditures for faculty salaries instruction and institutional maintenance are falling dangerously far behind inflation.

FINDINGS AND APPLICATIONS OF THE STUDIES OF EDUCATION AND FINANCIAL CONDITIONS--INDEPENDENT SECTOR

Virginia Hodgkinson
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National Institute of Independent Colleges and Universities

As usual the independent sector is staying in the same place. There are few new trends.

One of the findings of the Minter-Bowen study that has remained the same over the four years is that we are using up our physical and human resources. We are going to be on notice for a day of reckoning for the resources. In the fifth report we were shown to have coped with inflation over the last two years by cutting faculty buying power by 12 percent. This was an effort to balance budgets so that we have run the gauntlet in terms of being able to make ends meet.

What you see from the series of independent sector studies is that college presidents manage better than they did ten years ago, they know all of the terms, they know the ratios, they've stopped the upward flow of tenure. The only thing they can beat is inflation, bad market situation with regard to the endowment, energy, cost of libraries and cost of equipment. It doesn't matter how well you manage if you have to confront problems that have nothing to do with internal planning issues. The issues of critical importance for the 1980s, the financial problems that may well put both public and independent colleges in trouble will be exclusively major external issues--social security, taxes, energy costs, cost of paper, state and federal regulation and the increase in percent of administration. We must study these so that policy makers can document what is going on in an effort to change things a bit.

The three areas where we need answers have no methodology. We need that methodology very quickly. The areas are:

1) Capital investment in higher education--how much is being spent and for what?

2) Cost of operation--need to count fuel and what is deferred.

3) Student aid--it will cover only 49 percent of the bill under the best.

INTERPRETATION OF THE INDICATORS: IS FINANCIAL STRENGTH ERODING AND EDUCATION QUALITY IMPROVING?

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The apparent contradiction between the perception of educators that educational quality is improving, or at least holding constant, and the weakening financial position of many institutions of higher education is not as surprising as it may appear at first glance. The estimation of quality in education is always illusive. "Quality" refers to the cognitive and affective characteristics which result from the educational process. These characteristics may be of varying degrees of excellence. However, in our common sense use of the term, quality carries with it the connotation of a high degree of excellence.

However, in practice, we do think of characteristics which tend to fluctuate within a range. Quality is judged in relation to a goal, characteristics of the process, condition, or objectives necessary for the achievement of that goal, and criteria for the evaluation of the presence or absence of those characteristics. Thus, a clearly stated institutional mission will be conducive to quality because it focuses resources upon the attainment of objectives necessary to the achievement of that mission. In the decentralized administrative environment of the university college, individual faculty members and their administrators regularly plan for a specific level of quality. Only if these plans are in harmony with the institutional mission can optimum quality be achieved.

Awareness of the pervasiveness of judgments concerning quality is enhanced by using a systems approach. Evaluative measures are applied throughout the system to inputs to the process which occur within the system and to outputs. Control of input is assumed to influence the process of the system by increasing or decreasing the probability of specific occurrences within the processes of the system. Control of output approves or rejects outcomes on the basis of the harmony of those outcomes with the educational goals relevant to the institutional mission.

The financial crisis in higher education has most directly affected input factors, such as: faculty salaries, library acquisitions, and the purchase of equipment and supplies. While financial stringency has limited the range of possibilities within the process, it has yet to force a substantial change in the process of education. Therefore, it is possible that the characteristics of quality within the educational process can be maintained or improved in a period of diminishing resources. There is not a proven direct correlation between the amount of money spent on education and quality. The widely varying cost of educational programs across the country demonstrates this. However, there obviously are many ways in which the expenditure on education directly influences its character and effectiveness for specific purposes. In evaluating the impact of financial stringency upon educational quality, we must be sensitive to changes in purpose or educational concepts. Some goals of education, such

as experience gained through clinical work, are inherently more expensive than the transmitting of information. It would be entirely possible to run an educational program consisting solely of the conveyance of information through the lecture system at a much lower cost than an educational system which has as its primary goal the development and practice of applied skills.

More detailed explanations of the apparent contradiction between the financial stringency confronting higher education and the perception of steady or improving quality can be discussed in three broad groups. These groups are based on emotional reasons, situational factors, and adaptive strategies.

Primary among the emotional reasons is simply ego involvement. Many of us involved in academic administration feel, "If I am here and working this hard, things must be getting better." This is not said facetiously. I think that many of those responding to the questionnaire have been working hard to maintain or improve the quality of education and find it difficult to admit that their efforts have been unsuccessful. A second emotional reason is the reverse of this self-confidence. In filling out even an anonymous questionnaire, there is a feeling that admitting, perhaps even to one's self, that quality is declining will result in a weakening of the market position of the institution with a consequent downward spiral in enrollment and funding. Although these two emotional reasons may seem superficial, I believe that they do have a definite impact on many who fill out the questionnaires.

There are a number of situational reasons why the perception of the improvement of educational quality may be warranted. First, and primary, is that the quality of the faculty, both in terms of credentials and experience, has been increasing. The tightness of the academic marketplace in many fields, in addition to the increased production of doctorates from graduate schools, has enabled many institutions to be much more selective in their hiring of new faculty. Many of the experienced faculty who lacked the terminal degree have continued to work on that degree and have received it during recent years.

The instinctive reaction of many institutions to cut support budgets while keeping personnel recognizes that, in the highly personal process of education, people are the institution's most valuable resource. Great emphasis has gone into the selection and upgrading of the faculty. The faculty development programs which were so prevalent during the past decade are eloquent testimony to the importance which institutions place upon the teaching process. An experienced, competent, and dedicated faculty can compensate over a brief period of time for substantial financial inadequacies.

Also, the past decade has been characterized by an increased focus on the teaching process in most institutions. In part this was a reaction to the student movement of the late 60's and early 70's which so vigorously protested the depersonalization and research focus of many institutions.

Many faculty are "running scared." The tightness of promotions, tenure slots, and raises have caused many to work harder. They are concentrating on teaching while at the same time attempting to supplement their income through other professional activities which produce a more professional atmosphere.

As a part of programs to cut student attrition, academic advising has been emphasized at many institutions with a consequent improvement of student/faculty relations. As a graduate of a small liberal arts college, I felt that the close relationship between myself and my mentor on the undergraduate level was the most important part of my educational experience. Many retention programs have made efforts to increase this sort of interaction. This makes both the faculty member and the student feel better about the quality of the academic process.

In addition, the rise of student interest in career education has helped improve the quality of education in several substantial ways. The tightness of the employment market has made students more serious in their educational efforts in order to attain a competitive advantage in the post-graduate marketplace. Students in career education have specific goals which have contributed a seriousness of purpose, if not intellectual excitement, to the educational process. Perhaps, in this age of careerism, there is more congruence between student goals and the academic work within the classroom. The loss in the intellectual excitement on campuses has been compensated for by more assiduous attention to solid academic work within the classroom.

Finally, in some institutions, the shift of students to professional programs, particularly business administration, has assisted institutions in controlling educational costs. Despite high salaries, undergraduate business administration is frequently the lowest cost program on a campus. (For example, at Towson State, direct instruction costs of $16.15 per SCH in Business Administration as constrasted with $63.07 in Biology, $40.98 in English, and $206.42 in Applied Music.) In this way the institution has been able to increase its enrollment in lower cost areas while more fully utilizing its resources in high-cost areas. It would be worth examining whether the perceptions concerning the quality of education vary by discipline. In any event, if the rush to professionalism had been in high-cost areas, the impact of fiscal stringency upon educational quality might have been more visible and substantial.

The third broad area of explanation to this paradox is adaptive. First, institutions have adapted by keeping the people who provide the services while cutting down on equipment, services, maintenance, and salaries. This strategy, although one which will erode quality in the long run, does permit the institutions to maintain quality as long as the supplies are adequate, equipment functions, buildings do not collapse, and the faculty and staff morale can be maintained. So far, most institutions have been successful in achieving those goals. The effects of human, fiscal, and physical deferred maintenance are present but have yet to have their full impact upon the system. Indeed, we have been using up our capital. Second, qualified faculty members are ingenious in adapting to restricted resources. In many cases, the adaptations in programs which have been made are relatively invisible to the central administrative officer and senior faculty and must be ferreted out. For example, at my institution, the number of students sharing a cat for dissection has gone from two to four, the number of major theatre productions has been cut from four to two, and the advanced cartography class is offered only once a year because of the shortage of supplies. Computer terminals are inadequate so that the hands-on experience of the students is limited. Yet, unless the faculty members call this to the attention of the academic administrator, it will often go unnoticed because students are being educated and are being placed or admitted into graduate schools.

This flexibility of many of our faculty members illustrates the superficiality of a direct and immediate connection between cost and quality. There are many modifications which a skilled faculty member can make while maintaining the quality of a program. Eventually erosion takes place in the opportunities for hands-on experience, exposure to diversified library materials, acquaintance with contemporary equipment, and, indeed, the functioning of old equipment.

We now stand at the borderline between the maintenance of quality and the beginning of an actual erosion. On my campus we reached the decision last year that we could no longer afford to lose purchasing power due to inflation. Since 1970, the purchasing power of general funds from the state per FTE student has declined by 41 percent. Any further cuts would have directly affected the quality of our program in many areas. This feeling is evidently widely shared in the country, and accounts for the substantial increase in tuitions nationwide last year. We have turned back the thermostats as far as they can go. We have cannibalized audio-visual equipment to maintain functioning units. We have milked the travel budgets to provide support for only the active faculty members. We have pruned our serials collections of the esoteric (nice to have, but not necessary to have) materials. Further erosion of the support budgets will result in direct changes in the educational program.

In some ways, the quality may not be immediately reduced. There may be more emphasis upon theoretical learning and less on laboratory experience. Disciplines which should use audio-visual materials and computer terminals for balanced contemporary presentations may increasingly depend upon chalk and chalkboard. There may even be a temporary euphoria as more emphasis is placed upon the classroom discussion of fundamental ideas within a discipline. However, very rapidly the cost of chemicals will limit the experience of the chemistry student; the business student will be graduate without experience on current computers; the drama students will be able to participate in only one production a year; and the historian will have limited library resources at his or her disposal.

But the most serious degradation of educational quality will occur when the faculty member denied professional support for travel, the stimulation of new materials, and the task of constantly restricting the coverage of a course due to scarce resources, burns out. Whether that individual stays within the academy or leaves for greener pastures, we will finally begin to see the ultimate erosion in academic quality.

The apparent paradox is understandable. But, it must be read within the context of the summary conclusions of current studies of the financial condition of higher education. We are very close to the critical balance in which the eventual effect of the erosion of financial support of education will appear in greater modification of our programs and a loss of educational quality.

USE OF FINANCIAL ASSESSMENT IN DEVELOPING HIGHER EDUCATION POLICY

George B. Weathersby
Commissioner for Higher Education
State of Indiana

Public Policy Contexts

What I would like to do is to contrast what seem to me to be some significant differences between the state and federal policy context. First, to use financial assessment information to develop policy information for higher education it is important to understand the context in which policy is made. Second, the environment of higher education in the next few years is going to be very different than what we are used to. Third, there are a set of concerns and questions about the economics of higher education as an industry and as a firm which should be addressed by the kinds of financial assessment we are discussing now.

First, let us consider the public policy context. At the federal level, between 1965 and 1972 the Congressional volcano spewed forth literally dozens of new programs. So many programs that it has been impossible for higher education to assimilate them and financially unwise to fund more than a modest proportion of those authorized. Lately, it appears that there will be few new initiatives at the federal level. That may mean the passing of an era in which there was domination of initiative by the federal level.

The federal policy focus is on the student demand side. There are several other foci but the federal government is mainly concerned with students, project oriented research, and the continuing and systematic reduction of categorized programs beginning about 1969 and continuing to date (with the single exception being the black colleges).

The third point about the federal level is that those individuals chosen to serve at high policy making levels reflect more process management than policy leadership. Budget constraints are largely symbolic and are not all that real. At times they are even deceptive. There is an enormous uncertainty about deficits which are constantly rolled forward and there is a tremendous amount of off-budget financing. In most practical terms, the use of budget constraints are merely a symbol that is manipulated politically rather than a reality.

Finally, a fifth point, which is really a summary of the preceding four, is that higher education is not among the top ten issues for Congress or the Executive Branch.

I want to contrast those five statements with what is happening at the state level.

The states are assuming an increasingly assertive role with respect to higher education. The reorganization that is going on in a number of states, the real fiscal constraints that we face, the management controls that are increasingly being excercised, the financing of independent higher education which has expanded quite rapidly in the last ten years, the question of student assistance and how that is being pulled together at state levels, the incentives for quality improvement which exist only at the state level, the question of coordination with the secondary system and a whole set of other public institutions are all evidence of this more assertive state role.

The continuing focus of state policy is on undergraduate and graduate training opportunities, the supply side. More than 80 percent of the students educated in this country are educated primarily at state expense. In my view, the only public sponsor of truly basic research in the U.S. is state governments. Certainly that is true of most of the states I know. It is very hard to apply to the federal government for release of half of your time with no accountability, and yet we provide that to every faculty member at our research universities without application and without direct accountability.

The question of student aid and how that is to be coordinated so that students and parents understand what price they will actually be required to pay will happen only at the state level. The question of rational asset management including facilities, equipment, and tenured faculty will be resolved only at the state level. There is a growing focus on quality versus quantity of educational services at the state level.

System and state level executives are expected to provide substantive as well as process leadership. This includes academic program review and evaluation, design of qualitative improvements in educational service delivery, as well as in means of finance and equity of distribution.

Fiscal constraints are real and binding on state budgets. Most states (including Indiana) can incur no debt. The current recession is very expensive to Northeastern and Midwestern states: revenues are down and unemployment related expenditures are way up. There is no off-budget financing available in most states. Expenditures and actual outlays simply must be cut.

Higher education is a prominent part of the state government. In our state, higher education is 22 percent of Indiana's General Fund expenditures, and over $1 billion annually as an industry. It provides tens of thousands of jobs directly and perhaps one hundred thousand jobs indirectly. Higher education serves one-quarter of a million state residents annually, controls access to professions and is the source of scientific and professional knowledge and advice.

I raise those five areas because I think all of them reveal stark contrasts between the concerns of the states and the federal government.

Now let me suggest a second perspective of analysis and say that from a student perspective and an institution perspective I think that the 1980s and 1990s are going to be quite different from the preceding thirty years.

Student Versus Institutional Perspectives for the 1980s and 1990s

The period which we are in now and for the next ten to fifteen years I would label the Golden Age for Students. There are four reasons for this:

1. Declining numbers in the traditional age groups suggest an easing of competition and greater institutional outreach for new students.

2. The quality of faculty, facilities, computers, libraries and laboratories are higher than ever before.

3. Economic and "social" returns to college completion are increasing. Labor force is expanding more rapidly than the college graduating classes and, over the next five years, I believe we will see a reinstitution of the draft and increased competition for youth from the military.

4. The real cost to the student of college attendance is going down.

We now have a set of opportunities which are higher in quality on any measure we could offer. They are more accessible and provide higher returns at lower costs. From a student perspective, higher education is an excellent buy. Higher education is coming closer to fulfilling the promises it made during the past thirty years than ever before. In fact, the next two decades is a time of very likely success.

Challenging Times for Institutions

From the institutional perspective, these are at best challenging times. Most institutions fear a loss of enrollment whether they admit it or not. Income is tied directly to enrollment for most public and private institutions. Costs are becoming increasingly fixed: tenured faculty, facilities, energy, libraries--or costs are competitively driven as in the case of student financial aid. Our flexibility is least when we need it most. Risk capital has almost dried up: foundations are no longer interested in staking new ventures nor is the federal government. Most of our institutions are in rural areas and less well suited to urban demands and urban students. They are also set apart in their thinking about where to look for students. Productivity has increased very slowly if at all. Therefore, institutions of higher education are particularly vulnerable to high inflation. I know of no other

service industry where there has been such a uniform commitment to keeping technological advancement so slow.

For most of the 1970s and the foreseeable part of the 1980s, there has been and will be very little incentive for the best Americans to pursue doctoral studies in scholarly areas. I fear for the languishing of graduate education. An additional concern is that the proportion of graduate students who are foreign has skyrocketed. This does not bode well for the future of the American scientific estate or professoriate.

Lastly, it is still not widely accepted that university administrators need to be proven executives to cope best with intensifying pressures. Rank amateurs are viewed as our best hope against greater federal regulation, collective bargaining, severe fiscal stresses, and product obsolescence. Where before have rank amateurs successfully prevailed?

The questions that come forward in the policy arena are almost antithetical and certainly reflect the two different perspectives. Those who share the student perspective say we are doing a good job. We should keep going. From the institutional point of view we say cataclysm is at hand. All the indicators are down. Financial distress is upon us. We are no longer able to offer faculty salaries which increase faster than inflation. We are no longer able to expand our library holdings at the rate we could before. This is all terrible. The requested increases in state appropriations for next year in our state range from 22 percent to 75 percent. We are going to have about five percent more money to spend. There is no sense of realism about resource availability from the institutional perspective.

I mention these because it seems to me they will be an important part of the context in which financial information will be considered. Those who are responsible for clients see a system that has excess capacity and where we need to improve the quality by starting from the bottom. From the view of the providers, they also have excess capacity that has to be stored up by finding ways of financing which are unrelated to the delivery of the product.

Role of Information about Financial Condition of Higher Education in Forming Policy

How do we think about the kind of financial information we could provide which would be useful in forming policy? First, let us be critical, not negative but critical, and ask ourselves "When does information have value?"

I argue, only in changing decisions does information have value. If we are trying to change decisions we must be clear about whose decisions we are trying to change. Should we try to affect the decisions of students about what institution to attend? The decisions of donors about where to put their donations? Or are we trying to inform faculty about the value of a particular tenure offer?

In the data business, we have a supply far in excess of demand (and use) for several reasons.

1) Third party payers (NCES, NIE, NSF, foundations, etc.) support the development of data but are not the users.

2) No market test is required for data development.

3) There is very little of a wholesale market for data in higher education, unlike other areas in higher education there is very little effort to package and deliver timely data. Supply driven data analysis and research about financial condition has played and probably will play little role in policy formulation.

Policy Issues Needing Information about Financial Condition of Higher Education

There are two areas where we need further information about the financial need of institutions, first as an industry and then as a series of firms.

The Industry

As an industry is there anything about higher education that makes it fundamentally noncompetitive? If there is some reason why it is an industry that cannot survive a competitive market, we need to know that soon because it is going to be increasingly competitive.

-- Are there excessive and noncompetitve labor costs?

-- Do we use antiquated technology of production?

-- Is there a lack of market responsiveness?

-- Are we susceptible to the use of competitive alternatives to the current industry?

-- Are there diseconomies of scale or at least increasing marginal production costs?

A second question is "Are there fiscal or other forces impinging upon and operating within higher education that are inherently destabilizing?"

-- Is demand for graduate education organized as a hog-corn cycle?

-- Will multi-branch state systems lead to the demise of small independent campuses? Do we want that?

Relevance of Current Research on the Assessment of Financial Condition on Higher Education

I will close by posing three final questions. How well has current research expanded our understanding in the areas I have identified? What decisions have been changed? What evidence is there that the changed decisions have resulted in a state of affairs preferred by anyone?

October 6, 1980

American Council on Education
National Association of College and University Business Officers
National Center for Education Statistics

Annapolis-4

Fourth Annual Working Conference

Uses of College and University Financial Assessment
in Institutional Management and Public Policy Analysis

Thursday, October 23, 1980	Agenda	Presenter
8:30 - 9:30	Registration and Coffee	
9:30 - 9:45	Purpose of the Conference	Carol Frances Steve Campbell Paul Mertins
9:45 - 10:15	The Absolute Measurement of Financial Viability	John Minter
10:15 - 11:15	Computerized Applications of Financial Assessment Technology	Dan Updegrove Steve Campbell
11:15 - 11:30	Coffee Break	
11:30 - 12:00	The Uses and Utility of HEGIS Finance Data	Loyd Andrew Jim Hyatt
12:00 - 12:30	Problems in Providing a National Financial Data Base for Use in Management and Analysis Decisions	Norman Brandt
12:30 - 1:00	International Comparisons of the Potential Uses of Financial Assessment of Colleges and Universities	
1:00 - 2:15	Round Table Luncheon - Introductions	
2:15 - 2:45	Experiences with the Financial Self-Assessment Workbook	Scott Hughes
2:45 - 3:15	Use of Financial Assessment in Institutional Management: 1. Balancing Risks and Resources 2. Economies of Scale	Nathan Dickmeyer
3:15 - 3:45	Coffee Break	
3:45 - 4:00	The Capital Margin	Richard Wynn
4:00 - 5:00	Strategic Planning as a Response to Financial Health Analysis	Doug Collier
5:00 - 5:30	Discussion	
6:00 - 7:30	Reception	
7:30 - 8:30	Dinner	

Friday October 24, 1980	Agenda	Presenter
7:30 - 8:30	Coffee and Danish	
8:30 - 9:00	Techniques for Measuring Educational Financial Resource Disparities	Mary Golladay
9:00 - 9:30	Progress on the U.S. Department of Education Study of the Impact of Financial Conditions on Student Educational Opportunities	Jim Maxwell Nathan Dickmeyer
9:30 - 10:00	Federal Loan Default Predictions	Roberta Cable
10:00 - 10:30	Findings and Implications of the Studies of Education and Financial Condition 1. Private Sector 2. Public Sector	 Virginia Hodgkinson Jay Stampen
10:30 - 11:30	Interpretation of the Indicators: Is Financial Strength Eroding and Educational Quality Improving?	Howard Bowen Hoke Smith
11:30 - 11:45	Coffee Break	
11:45 - 1:00	Use of Financial Assessments in Developing Education Policy	George Weathersby
1:00 - 2:00	Lunch	
2:00	Adjournment	

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